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Original Articles.

SOME DEFORMITIES OF THE CHEST IN CHILDREN.*

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THE shape of the chest at birth differs from that of the adult. Its circumference is almost, if not quite, circular instead of oval. As a consequence of the circular shape alteration in the capacity of the thorax during respiration is difficult. During respiration in the adult the raising of the ribs causes the oval shape of the chest to become more circular, and the capacity is consequently increased. Since little of this increase can take place in the infant by means of thoracic movements the interchange of air in the lungs is carried on chiefly by the diaphragm, and the respiration is consequently described as abdominal. A cyrtometer tracing of the chest has been added of a child, aged 7 months, which shows well the circular shape.

Over it is placed a cyrtometer tracing of the head to illustrate how the circumference of the cranial vault exceeds that of the thorax in the early months of life. The measurements of the two cavities become equal about the end of the first year; although during the first months of life the measurement of the chest is small compared with that of the head, it is great compared with the length of the body. In an adult the measurement of the chest averages about half the height, but in the infant under the age of one year it exceeds half the height by $2\frac{1}{2}$ to

* A paper read before the Bristol Medico-Chirurgical Society.

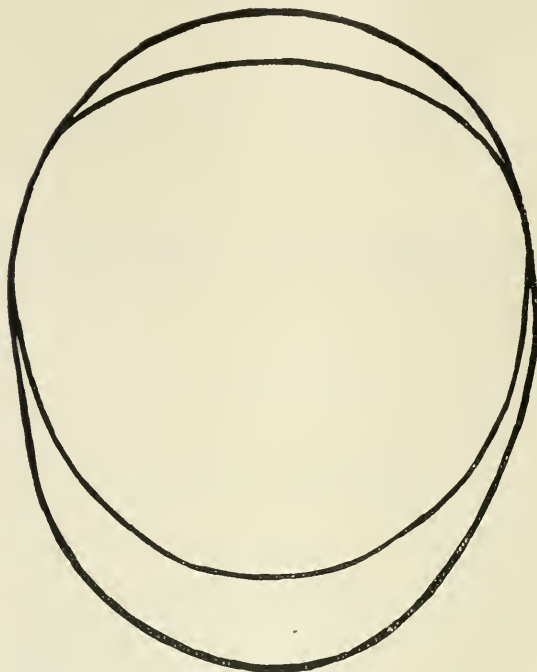


FIG. 1.—The inner line represents the shape of a cyrtometer tracing of a child aged 7 months. The outer line is from a cyrtometer tracing of the cranium. It shows the head to measure more in circumference than the chest.

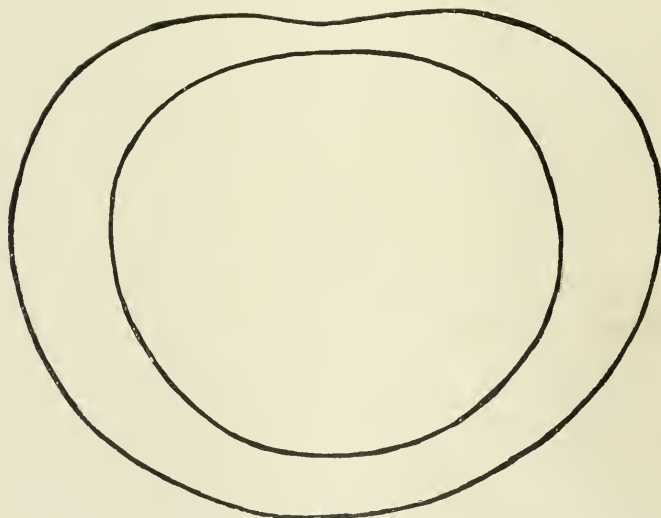


FIG. 2.—The inner line represents a reduced cyrtometer tracing of child aged 11 months. The outer line represents the tracing from the chest of a child aged 5 years. It shows that an oval shape has replaced the circular.

4 inches. Between two and eight years the comparative measurement of the chest with the height falls considerably, and between the ages of twelve and sixteen years it sinks below half the height. These, perhaps, are facts of no great importance, yet they are not without their interest. Another point of difference between the chest of an infant and that of an adult is its flexibility. During slight obstruction to the respiration in a young child, the costal margins will be noticed to be drawn inwards during inspiration by the action of the diaphragm pulling upon its attachments. When the obstruction is greater, another form of indrawing of a portion of the chest may sometimes be observed. During inspiration a groove will appear, perhaps fully half an inch deep or more, on either side of the chest,



FIG. 3.—Rickety chest.

running backwards and downwards round the anterior half of the chest, on a level with the lower end of the sternum.

Deep though the groove may be during inspiration in a healthy chest, it usually entirely disappears during expiration. While, however, where the ribs are of normal strength, the presence of this groove during some obstruction to the entry of air is associated only with the obstruction, and disappears if the obstruction ceases to exist, when the ribs are weakened by disease, lasting deformity follows. A groove in this situation forms the familiar lateral depression seen in the chests of children suffering from rickets, and associated with it is almost invariably an anterior and perpendicular groove passing downwards just behind the line of junction of the ribs with the costal cartilages.

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The lateral and more horizontal groove marks approximately the situation of the highest level of the abdominal viscera, the portion of the chest-wall below this groove being turned outwards by the pressure of the abdominal organs. In a child older than the age at which these grooves appear—the age was $2\frac{1}{2}$ years—there was during dyspnoea great retraction of the lower end of the sternum in the



FIG. 4.—Groove on one side of the chest (non-rachitic).

situation of the curious hollow sometimes seen in adults. I do not, however, remember having seen any other instance in which this curious form of retraction was noticed. To return to the lateral groove which occurs in the chest, this groove, it should be mentioned, is not confined to rickets, and need not be bilateral.

A reproduction of a photograph is given of the chest of a child, aged $2\frac{1}{2}$ years, showing a deep groove at the level of the lower end

of the sternum on the right side of the chest. The groove was said to have appeared during pulmonary trouble following measles, from which the child had suffered five months before. Over the lower lobe of the right lung the physical signs indicated chronic disease, with probable dilatation of the bronchial tubes.

Reference has been made to some of the appearances which occur during respiration as a consequence of the normal elasticity of an infant's chest, and of the fixation which may occur of those appearances when the ribs are softened by disease. Yet although we are dealing primarily with the shape of the chest, it may not be out of place here to refer to a way in which the lungs may suffer as a consequence of this elasticity. When the child is lying in bed on its back the flattening of the elastic ribs prevents expansion of a considerable portion of the lower lobes, and in the post-mortem room a strip of purple collapse, which may occupy one third or more of the posterior part of the lower lobe of one or both lungs, may be seen. In association with this, very often—we may say generally—is another morbid appearance, which also owes its existence largely to the elasticity of the infant's ribs, that is hyperdistension (acute emphysema) of a great portion, or of the whole, of the upper lobes. It is developed in the following way. Although normal respiration in an infant is almost entirely abdominal, in forced respiration the extraordinary muscles of respiration are brought into play, and it is the ribs of the upper and front part of the chest which are affected most by muscular traction, especially when the child is lying in bed. As a consequence of excessive expansion in this region the acute emphysema of the upper lobes, to which we have referred, makes its appearance. To return to the shape of the chest. The familiar deformity of rickets has been briefly considered; but there are other deformities scarcely less familiar, such as the flattening of one side, due to diminution in the size of one lung, flattening of one side combined with undue prominence of the other, associated with lateral curvature of the spine, and enlargement of the whole chest, due to hyperdistension of the lungs.

Flattening of one side of the chest is generally due to neglected pleural effusion. Even neglected purulent effusion (and it is scarcely necessary to add that in children pleural effusion almost invariably is purulent) is not always fatal. All the water in the effusion may be absorbed, leaving behind a collapsed lung covered with caseous or perhaps calcareous material. In such a case the affected side is flattened, the flattening being mainly produced by the falling downwards of the ribs, as can be seen in the accompanying illustration.

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It will be noticed that the shoulder and clavicle are also lower than the corresponding parts on the opposite side.

Before speaking of other deformities, it may be interesting to mention that even well-marked deformities of the chest are not always permanent. The deep grooves in the chest in rickets, for example, may entirely disappear. Although we frequently see rickety chests in children of the ages of five, or even six years, this deformity in older children is decidedly rare, and it is interesting to note that sometimes we have definite evidence of its disappearance. For example, in my note-books I have a sketch of the very rickety chest



FIG. 5.—Deformity of chest following collapse of the lung. Below are cyrtometer tracings from the same case.

of a child, aged 10 months. Eight years after the sketch was made the child was seen and proved to be then a delicately-formed girl. Not only did she possess a well-shaped chest, but the flattening of the back and top of the head which had been present had almost entirely disappeared.

Flattening of the chest also, due to the shrinkage of one lung, may disappear. For example, a girl, aged 2 years, was brought to the Bristol Children's Hospital, in which the diagnosis was "great deformity of the right side of the chest, due apparently to empyema and absorption of fluid." The child was "thin and wasted, with the exception of the face," and was too weak to walk. (I have added a reproduction of a rough sketch made in my notes.) The child

was brought up a year later, when further notes state, the chest sketched "as collapsed has completely expanded. The child has gained greatly in weight, and now looks a remarkably healthy child." It may be added that the notes also mention that scarcely any difference could be detected in the physical signs of the two sides of the chest, showing that the recovery of the shape of the chest was due to re-expansion of the collapsed right lung.

Besides deformity of the chest due to flattening there may be the



FIG. 6.—Rough sketch of a child's chest showing collapse of one side, which had disappeared a year later.

opposite condition, enlargement due to hyperdistension of the lungs in the chronic pulmonary diseases, chronic bronchitis, or asthma. Sometimes the deformity may be due to asthma, apparently existing as a purely nervous affection; for example, I have seen great deformity of the chest in a boy, aged 12 years, where asthma had existed since he was 12 months of age, and one of his brothers suffered from the same disease. In other cases bronchitis and asthma may be associated.

One illustration is from a boy, aged 9 years, who had suffered

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from asthma since an attack of bronchitis, which had occurred four years previously. From time to time also there had been recurrences of the bronchitis. The shape of the chest is the "barrel" shape, similar to that seen in adults suffering from chronic bronchitis and emphysema. While speaking of deformity of the chest in which some enlargement is present, reference should be made to the marked bulging that occurs over the cardiac area in some cases of hyper-

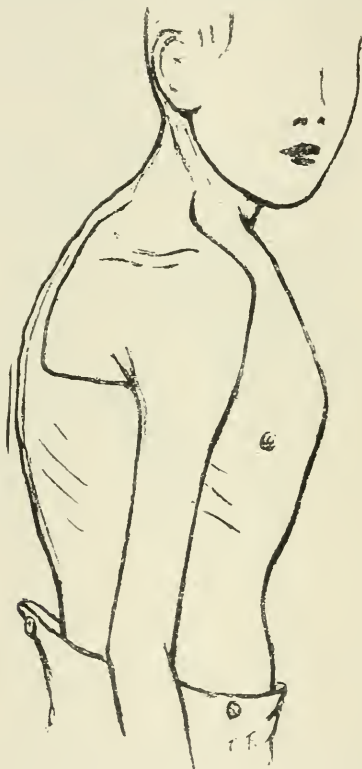


FIG. 7.—The chest in a case of asthma and bronchitis.

trophy of the heart in children. The hypertrophy in these cases is almost invariably found to be associated with general adhesion of the pericardium.

Lateral curvature of the spine is another disease which produces very marked deformity of the chest, the deformity being not only flattening on the side of the concavity of the curve, but prominence on the opposite side in front, due to the thrusting forward of the ribs by the twisting of the spine which generally accompanies the curvature. Although such curvature is generally slow in development and

due to bad habits, or to weakness of muscles of the back, it may sometimes make its appearance rapidly in association with fluid in the chest. For example, a boy, aged 5 years, was brought up for examination, not for general illness but for a lateral curvature of the spine which had been noticed by his mother. Examination of the chest showed that an empyema was present on the right side, which was the side of the concavity of the curve.

Although the further history of this case has little bearing upon the subject before us, it may be pardonable to outline it. The mother objected to leave the child in the hospital, or to allow even operation

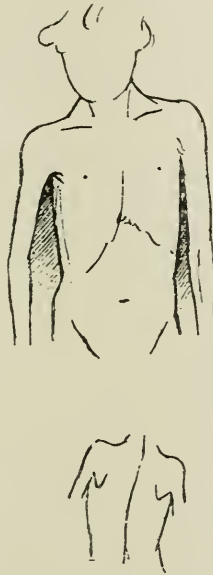


FIG. 8.—Sketches showing lateral curvature in a case of empyema.

by the medical man under whose care the child had once been. Nearly three years later the case was looked up in order to see what had happened, and somewhat to my surprise I found the child a picture of a healthy boy, with a well-formed chest and no trace of lateral curvature of the spine. According to the account given, at a time when he had "got very thin and so bad that he could not walk" he brought up a large quantity of pus ("over a pint") in one day. "After this, although down so low, he soon plucked up again."

In such a case as this the lateral curvature possibly existed from the time of the attack of pneumonia which was the cause of the

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empyema, the attitude being adopted to prevent painful movement of the affected side, or we may suppose that the position developed to allow freer expansion of the healthy lung. In this case, however, the marked flattening of the side of the chest, in which fluid was present, was exceptional, yet it is interesting to remember that careful measurements of the chest, and cyrtometer tracings, often show slight diminution in size, and flattening on the diseased side, in cases of empyema where no obvious lateral curvature is present.

My experience of cyrtometer tracings has not been sufficient to enable me to speak authoritatively on the point; but it so happens that my notes do not give an illustration of a case in which there has been marked enlargement of the chest on the side of the effusion, and although this is sometimes spoken of as if not uncommon, I cannot help feeling that, even when the pressure within the chest is

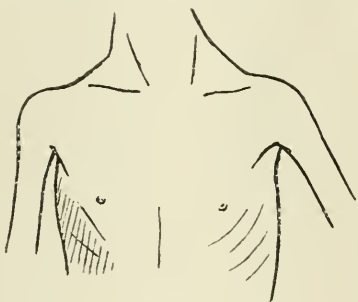


FIG. 9.—Sketch of another case of lateral curvature secondary to empyema.

sufficient to cause displacement downwards of abdominal viscera, enlargement is in reality rare. For example, in a child, aged 4 years, where the heart was displaced to the right of the sternum, the pus had perforated the wall of the thorax, and was appearing beneath the skin, the measurement of the affected side of the chest was $\frac{3}{4}$ inch less than the healthy side. This, no doubt, is exceptional. More commonly little difference can be detected in the size of the two sides, though I believe, when there is a difference, it is generally that of being smaller rather than larger on the diseased side. It is, of course, probable that in these cases the circumference of the side of the chest in which effusion is present exceeds its normal limits, but the healthy side at the same time exceeds these limits also, since the one lung which is free to expand may become over-distended in endeavours to carry on the extra work which is thrown upon it.

Bulging of the intercostal spaces is another sign of empyema that is sometimes spoken of as if it were common, but is, on the con-

trary, most certainly rare, and, it seems to me, occurs only in very exceptional cases where the intercostal muscles have become much weakened or even paralysed. In one such case I have seen the bulging so great, that the surgeon mistook the intercostal spaces for the ribs, and the ribs for the intercostal spaces. Such a condition as this, however, is, as we have remarked, extremely exceptional.



FIG. 10.—Photograph of a case of empyema opening through the chest-wall.

But while bulging of the intercostal spaces is rare, some apparent fulness of these spaces is not uncommon. This apparent fulness is not, however, due to bulging, but to œdema of the skin, which is at once evident on pinching up and comparing the skin on the two sides of the chest. Since we are talking of empyema, it may not be out of place to refer here to another appearance of the chest, that may be present in association with this disease. That is the existence of a

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swelling under the skin where the pus has perforated the wall of the thorax. The swelling generally makes its appearance in the front of the chest below the nipple, between the attachments of the pectoralis major, rectus abdominis, and serratus magnus muscles. For an illustration of this see Fig. 10.

Other nodular swellings seen in the chests of children, especially in the midaxilla, are due to callus, marking the site of green-stick fracture of one or more ribs. These fractures occur chiefly in rickets. Similar fractures may be produced in the clavicles by pulling the child up by the arms, and nodular projections, a sequence of these fractures, may be seen towards the inner extremity of these bones.

Another swelling of different character, and which, although at first comparatively localised, soon becomes widespread, is due to air beneath the skin—that is to say, is subcutaneous emphysema, which in rare instances is associated with some diseases of the lungs. The swelling first appears above the clavicle and spreads downwards



FIG. 11.—Callus following fracture of the clavicle in rickets.

over the chest, as well as upwards towards the face. Sometimes the whole body becomes affected. The subcutaneous emphysema originates in the form of emphysema of the lungs, known as interstitial or interlobular emphysema. This interstitial emphysema is by no means uncommonly seen in children after death where obstruction to the bronchial tubes has been present. Occasionally one may see the tissues of the mediastinum full of bubbles of air which has travelled to this region from under the pleura of one lung. The farther progress of the air upwards to the tissues of the neck, however, is much more rare. Only once has it been my lot to meet with such a case. This case proved fatal, and acute tuberculosis of the lungs was found to be present. Subcutaneous emphysema, when ending fatally, appears generally to be associated with tuberculosis; but, as we have indicated, the condition, interstitial emphysema, to which it is secondary, may be present wherever there is obstruction in the bronchial tubes, whether the pulmonary disease is necessarily fatal or not. When the disease of the lungs in which subcutaneous emphysema appears is one of hopeful character the child may recover, as in a case arising in the bronchitis of measles (Evans, 'Montreal Medical

Journal,' January, 1901, p. 8) or in pneumonia (Pierson, 'Pediatrics,' October the 15th, 1901, p. 314).

Similar subcutaneous emphysema may arise in adults when a gas-forming bacillus such as the *Bacillus aerogenes capsulatus* is present. I once saw a case in a child which, although unlike the acute cases of emphysema which may occur from the presence of the bacillus in adults, was interesting because it seems to me that patches of subcutaneous emphysema which were present over the chest, chiefly the back of the chest, must have been due to a gas-forming bacillus. The mother dated the child's illness from the drinking of water in which some flowers had been standing for some days. Wasting, for which no cause could be discovered, followed. The subcutaneous emphysema was discovered by the registrar to the Bristol Children's Hospital, Dr. Newman Neild, at the time of admission, and he found, after death, also several small cavities in the lung similar to the cavities formed in the liver and other organs by the *Bacillus aerogenes capsulatus*.

It is sometimes said that the prominence of veins over the chest-wall is a sign of the presence of enlarged and caseous bronchial and mediastinal glands. I have been unable to satisfy myself upon this point. My post-mortem experience has been large, but I have rarely seen enlargement of the mediastinal glands that can have interfered with the circulation of the superior vena cava or of the innominate veins. It must also be remembered that it requires very marked obstruction of the circulation through these veins before the face or skin over the chest-wall gives evidence of such obstruction.

The foregoing remarks do not by any means refer to all varieties of deformity of the chest to be found in children, and about those touched upon much, no doubt, has been said that is commonplace, but it is sometimes interesting to review our experience of what is thoroughly familiar.

THE COINCIDENCE OF DISEASES.

By EDMUND CAUTLEY, M.D.Cantab., F.R.C.P.Lond.,

Physician to the Belgrave Hospital for Children and to the Metropolitan Hospital.

THE coincidence and interaction of diseases rarely receive due attention. Consequently errors in diagnosis, treatment, and prognosis are not uncommon, for the difficulties are greatly increased, especially when the concurrence is unsuspected. Acute diseases may

be coincident and run their course without influencing each other to a recognisable extent. The total effect on the patient is usually one of increased severity of the illness. Thus, the concurrence of measles and diphtheria in the very young is almost invariably fatal. Such cases have been recorded, and the laryngeal obstruction due to the diphtheria is very liable to be mistaken for that of the laryngitis of measles. Measles has been reported concurrent with scarlet fever and with varicella, and scarlet fever with smallpox. Typhoid fever and paratyphoid have also been found in conjunction in cases to which I referred in a paper on paratyphoid fever in the June number of this JOURNAL. Of the latter association I now record two more instances. The coincidence of acute anterior poliomyelitis and diphtheritic paralysis is undoubtedly rare and illustrates the difficulty of diagnosis and prognosis. The association of tuberculous meningitis with the presence of the *Diplococcus intracellularis* of Weichselbaum indicates the danger of basing a prognosis on the results of bacteriological examination of the cerebro-spinal fluid obtained by lumbar puncture, and suggests that in some instances the diplococcal infection may be a terminal one in the course of other diseases.

A more common coincidence of disease is that of acute illness in a patient affected by a chronic one, modifying its course and duration. The beneficial effect of an attack of erysipelas on new growths, lupus, chronic eczema, and chronic ulcers, has often attracted attention. Some observers have found that vaccination with calf lymph modifies whooping-cough and renders it comparatively harmless. Others have noted that it sometimes has a beneficial effect on eczema and chronic skin affections. Such effects suggest wide possibilities in the treatment of disease.

Typhoid plus Paratyphoid Fever.

CASE 1.—A girl, aged 7 years, was admitted to the Metropolitan Hospital under my care on July the 3rd, 1905. A sister had died one month previously in another hospital from “enteric fever.” Patient was taken ill with headache, drowsiness, and fever on June the 19th. On the 21st she complained of stomach-ache and took to her bed. She had had no epistaxis or diarrhoea. On admission she was pale, had a slight cough, and a dry, furred tongue. No bronchitic sounds were heard in the lungs. There was no abdominal distension. The spleen was large and easily felt. Numerous rose spots were scattered all over the trunk. The temperature was 103° F.

The course was that of a mild attack of typhoid fever, with constipation throughout. The defervescence was gradual, the temperature remaining down after July the 9th. Convalescence was uninterrupted.

A blood examination on July the 11th gave a positive Widal reaction in ten minutes, with a dilution of 1 in 30, and a positive reaction with the paratyphoid *a* organism in the same time and with the same dilution.

CASE 2.—The mother of the above child was admitted on July the 6th. She was aged 31 years, careworn and thin, and much more seriously ill. Headache and abdominal pain began on June the 16th, and she had remained in bed until a few days before admission. Constipation had been present since the first two days of illness.

A few scattered rose spots were found. The abdomen was tender on palpation and the splenic dulness was enlarged. Nothing abnormal was found in the chest. Pulse 120; temperature 101.4° F.

A blood examination on the next day gave a positive Widal reaction in ten minutes with a dilution of 1 in 25, and a positive reaction with the paratyphoid *a* organism in twenty minutes with the same dilution. This was verified by a second test.

On July the 10th fresh spots were found and a cloud of albumin in the urine. The temperature had ranged between 102° F. and 104° F.

On July the 13th there were still more spots, rather dry tongue, and loose stools, with a small blood-clot in one. She was distinctly worse, restless, and rather tremulous. The temperature had been from one to two degrees higher since the previous day, and the respiration rate more frequent. On examining her chest the left lower lobe was found to be consolidated. No definite onset of the pneumonia was noted.

On July the 15th she was distinctly weaker and more tremulous. In the afternoon she had two rigors, followed by great feebleness of the pulse and rapid respiration. She got steadily worse and died the following morning.

Unfortunately, an autopsy was not obtained. No definite cause for the rigors was found, but the occurrence of the pneumonia and rigors is strongly suggestive of a general blood infection, such as is found in cases of paratyphoid fever. The continued eruption of spots is also in favour of this view.

Tuberculous plus Cerebro-Spinal Meningitis.

CASE 3.—A boy, aged 3 years, was admitted into the Metropolitan Hospital under my care on June the 24th, 1905. He was one of seven living children. Nine others had died in infancy. There was no history of phthisis in the family. He was breast-fed in infancy and had had no illness until the last month, during which he had attended as an out-patient for cervical adenitis.

His present illness began on June the 14th, with headache, and since then he had been ailing and listless. He vomited on the 16th. No constipation had been noted.

On admission he was well-nourished, not rachitic, drowsy, and irritable. The tongue was furred and the knee-jerks active. On June the 26th there were slight fever, irregular pulse, and anorexia; tâche cérébrale, active knee-jerks, no retraction of head or abdomen, and no rigidity of the neck muscles. The percussion note was a little impaired over the second right interspace near the sternum. On June the 28th he was more drowsy, had incontinence of urine and occasional squint.

Next day the head and abdomen were retracted, the pupils dilated, and he was partially unconscious. Kernig's sign was present. He was nasal-fed. On the following day he had a fit. He remained much the same until July the 3rd, when he had more fits, became stuporous, and exhibited squint, unequal pupils, rigidity of the legs, a pulse rate of 144 and Cheyne-Stokes' breathing. He got steadily worse and died on July the 5th. Constipation was present from the time of admission. The temperature kept low until the last 48 hours of life, when it ranged from 100° F. to 102° F.

Lumbar puncture.—Five drachms of clear fluid were withdrawn on July the 3rd. The diplococcus was present in pure culture and grew freely on blood-agar.

The autopsy showed much cloudy fluid and lymph at the base of the brain, with miliary tubercles scattered about in the common situations, and considerable hydrocephalus; tuberculous consolidation of the lower part of the right upper lobe; caseous glands at the roots of the lung and bifurcation of the trachea; tubercles throughout the spleen, and subperitoneal tubercles on the liver. The mesenteric glands were not caseous.

Acute Anterior Poliomyelitis plus Diphtheritic Paralysis.

The occurrence of anterior poliomyelitis shortly after an attack of diphtheria may lead to the palsy being ascribed to the diphtheria and consequently an unduly favourable prognosis.

A boy, aged 16 months on admission into the Metropolitan Hospital on November the 5th, 1904, illustrates this difficulty.

On October the 17th he attended as an out-patient for loss of voice. He did not seem ill and the aphonia was ascribed to a mild attack of laryngitis. He went on quite well until November 1st, when he began to vomit. Two days later he had difficulty in swallowing and the same night had a fit. On the next day he had numerous convulsions, and on the day following it was noticed that his breathing was "funny," and that he was unable to cough properly.

On admission he presented the following symptoms. He was well-nourished, preferred the dorsal decubitus, was unable to hold up his head, could not cry, and had a weak, ineffectual cough. His colour was good, the alæ nasi dilated, the movements of the thorax very slight, and the lower ribs were drawn in on inspiration, expanded on expiration. Respirations 40-50 per minute. Much general bronchitis. Heart natural. Legs not apparently paralysed, but knee-jerks absent. No nasal regurgitation. Apparently paralysis of accommodation.

Thus, at this period there were definite and severe paralysis of the intercostal muscles, loss of knee-jerks, and general muscular weakness, but no complete paralysis of any one limb. On account of the difficulty in coughing and the accumulation of secretion in the lungs the child was dangerously ill. The lower end of the bed was kept raised and no pillow allowed. The benefit of the action of gravity was by these means obtained. Liquor atropinæ and, later on, tincture of belladonna were given to lessen the secretion.

On November the 7th it was necessary to commence nasal feeding as the child was incapable of swallowing. This had to be kept up for a few days. On the 8th he had an attack of tachycardia during the morning. Cultivations from the throat yielded a growth of the Klebs-Loeffler bacillus. Three days later it was noted that the right arm was distinctly weaker than the left, and that the legs were moved very little. On November the 22nd there was cervical adenitis on the left side. Three days later there were nasal discharge, fever, and malaise.

On November the 30th a small patch of consolidation was found

in the right supra-scapular fossa, which cleared up two weeks later. The left ventricle was considerably dilated, the dilatation subsiding in a week. The glands in the left side of the neck remained enlarged for some weeks. On January the 4th, 1905, left otorrhœa developed. There was no evidence of intercostal paralysis after December the 30th.

On February the 17th it was noted that the boy was quite well, except for the paralysis. The knee-jerks were absent. He sat up with difficulty. The electrical reactions in the muscles supporting the spine were normal in character but weak. There was no response to either strong faradic or galvanic currents in the muscles of the buttocks or lower limbs, except in the plantar muscles. The amount of voluntary muscular power in the legs was slight and in the arms was deficient, being weaker in the right than the left.

In June he was re-admitted for bronchitis. He still had paralysis of the lower limbs, absence of electrical reactions in the muscles of the buttocks and legs, except the plantar muscles; weakness of the muscles of the spine and of the left abdominal muscles, allowing "ballooning" of the abdomen on that side when he cried.

The points in favour of diphtheria were the attack of laryngitis, the recovery of the diphtheria bacillus from the throat, the difficulty in swallowing, the evidence of paralysis of accommodation, the subsequent adenitis, nasal discharge, and otorrhœa, the temporary attack of tachycardia and the dilatation of the heart.

That there has been an anterior poliomyelitis is, I think, quite certain. The extent of the paralysis, the absence of electrical excitability, and the slight improvement are opposed to a diagnosis of extensive diphtheritic palsy. Further there was no evidence of nasal regurgitation or of paralysis of the soft palate, but the latter is hard to recognise in a mild form in an infant. The marked intercostal paralysis coming on before that of the limbs is very unusual. Convulsions and vomiting at the onset are also in favour of the diagnosis. I regard this case as one of acute anterior poliomyelitis occurring during convalescence from a mild attack of diphtheria and associated with a certain degree of diphtheritic paralysis.

A CASE OF PECULIAR CUTANEOUS PIGMENTATION,
PROBABLY AN INCOMPLETE FORM OF RECKLING-
HAUSEN'S DISEASE.*

By F. PARKES WEBER, M.D.

THE patient is a fairly well-developed girl, aged 15 years. The pigmentation affects the trunk and neck chiefly, and the extremities to a much lesser degree, the face being almost free. There are no areas of leucodermia. There is no evidence of urticaria, factitious urticaria, purpura, or any kind of erythema in connection with the condition. The patient presents, roughly speaking, three different kinds of cutaneous pigmentation, namely: (1) Diffuse brownish patches, especially a large patch over the upper part of the back and neck, which has a sharply defined, probably stationary, upper border, but is ill-defined below, in which direction it is apparently spreading and merges gradually into the ordinary skin. (2) Brown spots and small patches plentifully scattered over the trunk, the paler ones being probably those most recently developed. (3) A group of very dark, almost black, spots on the left side of the thorax, resembling a group of "pigment naevi," but not raised above the general level of the skin. These blackish spots were first noticed about three years ago. The earliest pigmentation noticed by the mother was at the back of the neck when the child was only about eighteen months old. Since that time the rest of the pigmentation has gradually developed, and fresh, relatively faint spots and patches have lately appeared on the extremities. The patient's general nutrition is fairly good, and menstruation has recently commenced. Though she looks rather pale, examination of the blood (Dr. Schenck) has shown nothing of pathological significance. The brachial blood-pressure by the Riva-Roci instrument was found to be about 130 mm. mercury. The examination of the thoracic and abdominal viscera and of the urine shows nothing abnormal. Cutaneous sensation, knee-jerks, and plantar reflexes are natural. The mental development and general intelligence are up to the average. There is no pigmentation in the mucous membrane of the mouth. In the past history of the patient the only noteworthy point is that she has always been very liable to headache and bilious vomiting. But there has been no tendency to fainting such as to suggest Addison's

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disease. On the contrary, the attacks of vomiting seem to have been induced by certain articles of food, such as rich, fatty things



and, at one time, raw apples. Moreover, the patient's mother, as a child and young woman, used to be subject to so-called "bilious

attacks" (it may be noted in this connection that the mother has small patches of *Xanthelasma palpebrarum*, which appeared some years ago), and one or two others in the family have been inclined to similar attacks. Apparently no anomalous pigmentation has been observed in the family except in the patient herself. In her case, from the diagnostic point of view, it is to be noted that the pigmentation affects chiefly the covered parts of the body, and that there is no special liability to freckling from exposure to the sun. This is the reverse of what occurs in cases of Kaposi's Xerodermia pigmentosa. The variety in the colour and form of the areas of pigmentation and their situation (mainly on the trunk) make it seem most probable that the present case is allied to (that is to say, a *forme fruste*, or incomplete form of) Recklinghausen's disease—in fact, that it is a case of neuro-fibromatosis, with typical cutaneous pigmentation, but, as yet, practically without any (superficial) tumours. There is only a single small, flaccid, molluscous tumour to be found. This is situated on the lower part of the back and was first noticed about three years ago. Probably no other satisfactory explanation for the pigmentation can be offered except that mentioned above, which was first suggested by Dr. A. Whitfield when he was told about the case.

A CASE OF CONFLUENT VARICELLA WITH SECONDARY FEVER.

By J. D. ROLLESTON, M.A., M.D.Oxon.,

Assistant Medical Officer at the Grove Fever Hospital of the Metropolitan Asylums Board.

A HEALTHY boy, aged 5 years, whose two sisters had recently had chickenpox, was admitted into hospital on October the 8th, 1903, with a typical attack of scarlet fever. He had been ill two days. General desquamation followed. The temperature, which was $102\cdot8^{\circ}$ F. on admission, subsided by lysis to subnormal on October the 18th, and remained so till October the 26th, when it rose to 99° F. in the evening. The following morning numerous papules and vesicles of the appearance and in the situations characteristic of varicella were seen. Several of the lesions were ruptured by scratching. At 10 p.m. that night the lesions numbered 160 in all, and occupied the following distribution: Trunk 76, thighs 26, legs 12, feet 5, arms 31, hands 0, neck 5, face 4, scalp 1. At 11.30 a.m. the next day, apart from the papules which were not taken into account, the vesicles alone num-

bered 254. The distribution was as follows: Trunk 97, thighs 60, genitals 12, legs 12, feet 8, arms 37, hands 10, face 4, neck 12, scalp 2, fauces 0.

October the 29th.—The child passed a restless night. Pyrexia was maintained with very slight morning remission. Very many fresh papules and vesicles had appeared since the last note. On the lower part of the back the eruption was confluent to a great extent. On the extremities it was abundant. Several of the lesions were multi-localar. Some showed distinct umbilication, but collapsed readily on pricking. The vesicles were now 794, and were arranged as follows: Trunk 300, genitals 20, thighs 176, legs 65, feet 54, arms 84, hands 42, neck 30, face 9, scalp 6, palate 7, left tonsil 1. 11 p.m.: Most of the vesicles on the trunk had ruptured, leaving a bleeding surface. On the limbs the eruption was semi-confluent, being most marked on the legs.

The albumin in the urine which had appeared a few days before the onset of varicella had now increased from a mere trace to a cloud. The child being very restless, 20 grains of trional were given at night.

October the 30th.—The patient slept well after trional, but looked ill, and was very fretful, especially when touched. The least movement being very painful, he did not attempt to move himself for any purpose. The distribution of the lesions was now like that of confluent smallpox. The oedema of the face and the swelling of the limbs, especially of the fingers, which were kept in a semi-flexed, helpless condition, heightened the resemblance. The vesicles had now reached their maximum, 2185, and showed the following distribution: Trunk 574, genitals 30, thighs 511, legs 197, feet 185, arms 394, hands 147, neck 93, face 50, scalp 4. There were also several lesions on the hard palate, but none on the buccal mucosa. 5 p.m.: A few intra-vesicular hæmorrhages on the left forearm, right knee, and left ankle were noted.

October the 31st.—No fresh lesions had appeared. Desiccation and incrustation were commencing generally. Many of the vesicles had become pustules, especially on the back. No fresh intra-vesicular hæmorrhages were seen. Movements were still very painful.

November the 1st.—Most of the lesions on the trunk had desiccated, the lesions on the thighs, legs, and arms were pustular, but most of those on the hands and feet were still in the vesicular stage.

The next morning the temperature had fallen by crisis and remained practically normal for about a week. The body and limbs were still very tender, but the general condition had improved. Desiccation and incrustation were now general, except on the hands

and feet, where the lesions were pustular and did not reach complete desiccation till November the 10th, by which time many of the scabs on the trunk had separated. The copious exfoliation of the scabs, filling the bed several times in the day, and the associated fœtor, due to the extensive involvement of the skin, were additional points of resemblance to a case of confluent smallpox.

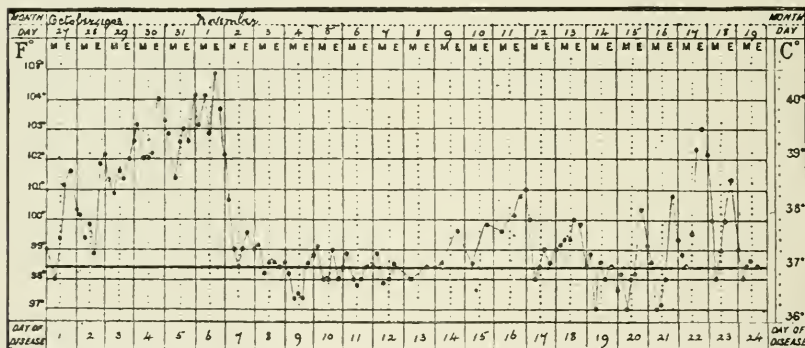
From November the 9th to the 19th, when the temperature became finally settled, there was pyrexia, due to the formation of numerous areas of suppuration beneath the scabs, which on separating left punched-out ulcers. These were successfully treated as they arose by the four-hourly application of boracic fomentations.

By December the 4th all the scabs had separated, and the child was discharged in good health on December the 10th. The skin presented numerous scars, showing various degrees of pigmentation and of different shapes and sizes, chiefly on the trunk and limbs, with only a few on the face.

The well-known dictum of Sydenham concerning scarlet fever is so much more applicable to the great majority of cases of chickenpox that varicella is usually regarded as one of the most insignificant of febrile disorders. More than a hundred years elapsed from the time that varicella was differentiated from variola by Heberden (1) before the prognosis of chickenpox was regarded as otherwise than entirely favourable. The recognition, however, of nephritis as an occasionally fatal complication of varicella gangrænosa, and later still of hæmorrhagic forms of chickenpox (2), tended to modify the teaching of Trousseau that no physician had ever seen a patient die of chickenpox. Confluent chickenpox is so extremely rare that very few cases have been recorded (3). It is interesting to note that in 1805 Ring published such a case in the 'Medical and Physical Journal.' The engraving—which proves that the case really was varicella—shows that while many of the lesions were coherent, there were many more areas of unaffected skin than in the case under discussion. In the present case the absence of prodromal symptoms, the appearance of an eruption of fully-developed and even ruptured vesicles co-existent with macules and papules on the first day, the efflorescence of successive crops, and the shape of the lesions themselves stamped the case as unmistakable chickenpox. Specially noteworthy were the multilocular and umbilicated vesicles, which, though more common in smallpox, are not confined to that disease, the scantiness of lesions on the scalp, with so abundant an eruption on the face, and the unusual persistence of the vesicles on the extremities. The distribution of the lesions at first was quite charac-

teristic of varicella, but subsequently the eruption became confluent on the limbs. The presence of a few intra-vesicular hæmorrhages scarcely entitles the case to be ranked as one of hæmorrhagic varicella. There were no purpuric spots or petechiæ between the vesicles, nor hæmorrhages from the mucosæ.

The severity of the attack can be gauged by comparing it with the ordinary cases of chickenpox. Thus, in six typical cases under my care, in which all the lesions, not merely the vesicles, as in the present case, were counted, the sum total varied from 48 to 562. In two of these cases the temperature did not rise above 99° F.; in none did it exceed 101.8° F., whereas in the case under discussion the primary fever lasted a week and the secondary fever ten days. The rapid defervescence of the primary fever shown in the annexed chart is characteristic of varicella (Wunderlich). The occurrence of secondary fever in varicella has been particularly noted by French



writers. Comby (5), in his text-book, gives a chart where the temperature remained at 100.4° F. for three days after an apyrexial interval. All degrees of dermatitis may follow varicella, from the gangrenous process first described by Hutchinson (6) down to the superficial inflammation at the site of the scabs. The abscesses in the present case form an intermediate stage, none of them advancing below the dermis.

Since it is impossible to foretell at the beginning of an attack the future extent and progress of the eruption, treatment should not be, as in the present case, purely expectant. During the last year I have adopted as prophylaxis against what may prove a troublesome complication in convalescence the employment, morning and evening, of boracic baths (one ounce of the crystals to a gallon of water). The cutaneous irritation often so distressing in the disease is

thereby considerably alleviated, and the tendency to scratch is checked, so that the amount of subsequent dermatitis is reduced to a minimum.

[I am indebted to Dr. J. E. Beggs, Medical Superintendent of the Grove Hospital, for permission to publish this case.]

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*Dr. MacCombie has kindly allowed me to allude to a fatal case of confluent chickenpox which I saw some years ago at the Brook Hospital, where death, as in Nisbet's case, was due to extensive involvement of the skin.

The Society for the Study of Disease in Children.

SPECIAL MEETING FOR THE DISCUSSION OF PLEURAL EFFUSIONS, SEROUS AND PURULENT, IN CHILDREN.

A MEETING of this Society was held at No. 11, Chandos Street, W., on December the 15th, 1905, Dr. LEONARD GUTHRIE in the chair.

The discussion on the bacteriology and pathology of pleural effusions was opened by Dr. J. G. EMANUEL (Birmingham). He remarked that serous are four times as common as purulent effusions in adults, but in children they occur in practically equal numbers. In adults a purulent effusion is often secondary to a serous, but in children it is generally purulent from the first. Seventy-five per cent. of empyemata are pneumococcal, and these may be either secondary to pneumonia or primary. The pneumonic cases may be peri-pneumonic or meta-pneumonic. Streptococcal empyema is rare in children but common in adults. Empyemata containing staphylococci often indicates tuberculosis. An empyema complicating a case of pulmonary tuberculosis is generally pneumococcal or streptococcal. Pneumococcal empyemata may be (1) localised to the pleural cavity; (2) may infect *viâ* the lymphatics, giving rise to pericarditis, peritonitis, etc.; (3) may infect *viâ* the blood-stream, giving rise to meningitis, endocarditis, etc. Dr. Emanuel further discussed the subject under the following headings: Pseudo-empyema—a collection of pus behind the parietal pleura simulating an ordinary empyema. Phagocytosis as an indication of virulence of the micro-organism. The naked-eye appearance of the pus is no reliable indicator of the micro-organism. There is no essential bacteriological difference between serous and purulent effusions. The difficulty of distinguishing pleural transudations and exudations. The bacteriology of idiopathic sero-fibrinous effusions. Cyto-diagnosis. Pleurisy due to the typhoid bacillus. Rheumatic pleurisy.

Mr. LOCKHART MUMMERY said that cases of empyema in children could be conveniently divided into two classes—(1) those where the infection is purely pneumococcal and (2) those where a mixed septic or tubercular infection exists. The great majority of cases are pneumococcal, and in these a free exit for the pus is all that is required; drainage for any length of time is unnecessary, and it is often unnecessary to use a drainage-tube at all. In the other class of cases, and in those where much thickening of the pleura exists, good drainage is always necessary. He drew special attention to the importance of careful aseptic technique in all cases of empyema, as the dangers of secondary infection are considerable. In discussing the question of the anæsthetic he advised the C.E. mixture of light chloroform and oxygen. The importance of not allowing a large empyema to empty too quickly was also mentioned. He advised irrigation of the pleural cavity with water or salt solution in suitable cases, and pointed out that the fatal results which have sometimes followed this practice are to be attributed to the iodine or carbolic acid solution used. Mr. Mummery considered the after-treatment of cases of empyema in children of the utmost importance. He mentioned the importance of not restricting the thoracic movements by tight bandages or heavy bed-clothes. He advised respiratory exercises to re-expand the lung in all cases, at first expiration against resistance to enable the sound lung to expand the affected one, and later regular respiratory and muscular exercises in a surgical gymnasium, which should by preference be carried out in classes of several children by a skilled instructor.

Dr. G. A. SUTHERLAND referred to the frequent absence and slight character of the symptoms in many cases of moderate pleural effusion. Breathlessness and tiredness on exertion were the commonest symptoms complained of. Coughing, pyrexia, wasting and anæmia were often present, but were not diagnostic. A lemon-coloured skin and clubbing of the fingers, which had developed rapidly and without cyanosis, were strongly suggestive of purulent effusion. A diagnosis could only be made by a careful examination of the chest, noting the position and condition of the lungs, the heart, and the diaphragm as indicated by the stomach resonance and the hepatic dulness. The chief use of the exploring needle was, not to determine the presence of fluid, but to distinguish between serous and purulent effusion.

Dr. HOBHOUSE (Brighton) said there could be no doubt that it is possible to cut short the acute pleurisy and prevent effusion by active measures in the early stage, but when once effusion has fairly commenced it is very doubtful whether it can be cut short by any medical measures. Two or three different lines of treatment have been pursued by different authorities. In the first instance it was sought to reduce the quantity of fluid by increasing the fluid output and reducing the intake. With this object diuretics, diaphoretics, and purgatives were given freely and a thirst diet adopted; most authorities are agreed that the results attained are by no means proportionate to the discomfort entailed. If a reasonable trial of medical measures is insufficient to reduce the effusion, it will be necessary to remove the fluid by puncture.

Dr. W. J. S. BYTHELL (Manchester) said about three years ago he undertook the investigation of the bacteriology of empyema in children, and the objects at which he aimed were to determine (1) the source of infection of the pleura, (2) the species of micro-organism, and (3) the influence of the bacteriology upon the clinical features of the disease. In forty cases of empyema—children whose ages varied between ten months and eleven years (of these twenty-seven were males and thirteen females)—the source of infection in

over 80 per cent. was undoubtedly an acute broncho-pneumonia, 10 per cent. an acute pneumococcic infection of a pre-existing pulmonary tuberculosis; in one case it followed upon a sarcoma of the lung. In six cases the empyema appeared to be "primary." The influence of age upon the species of bacteria is well known, and his observations confirmed fully the great relative frequency of pneumococcic empyema; the actual percentage in his own cases was ninety alone or with streptococcus. Turning to the clinical aspect of the bacteriology, he remarked that most writers are of opinion that the pneumococcus produces a comparatively mild type of empyema, and that streptococcus is more apt to give rise to symptoms of much greater severity. His own observations tended to only partially confirm this view; in four streptococcic cases they were very mild, and though the pneumococcic cases were milder than those in which other micro-organisms were present, yet several were distinguished by severe and long-continued symptoms.

Dr. WILLIAM EWART read the notes of a case under his care at the Belgrave Hospital of a boy, aged $10\frac{1}{2}$ years, treated by paracentesis by syphonage with admission of air into the pleural cavity. The effusion, having recurred, was treated by intra-pleural injections of adrenalin solution without paracentesis, with rapid recovery.

Mr. L. S. DUDGEON said that during the last five years he had made many examinations of the fluid taken from the chest in cases of serous and purulent effusion, and he thought that since Widal originally suggested that method it was found to be one of the most valuable we have, because if one drew off clear effusion and found the cells, either in few or large numbers, consisting entirely of lymphocytes, he thought one could definitely say it was tuberculous. If, on the other hand, one found what was described as the polynuclear phagocyte, one could say it was due to one of the pathogenic organisms. After a large experience during the last four or five years, he had found it practically constantly. Another point to which reference had not been made was that in one case he found a very large number of cells which showed active myototic figures, and when the child died it was found to suffer from diffuse sarcoma of the chest cavity and pleura. With regard to the bacteriology of the affections under consideration, sufficient had already been said about the pneumococcus, and probably someone who knew more about it would speak on that presently. In those cases of empyema which went to the post-mortem room, he in several instances drew off blood in a sterile glass syringe post mortem, and obtained an abundant growth of pneumococcus, which suggested the fact that the fatal cases of empyema might be examples of pneumococcal septicaemia. With regard to another micro-organism, *Staphylococcus pyogenes aureus*, in four cases of bone abscess which developed empyema he obtained a pure culture of *Staphylococcus pyogenes aureus*. With regard to streptococcic infections, he thought it was time observers were more careful about speaking of streptococcic infections. That was extremely important, quite apart from bacteriology, because at the present day antistreptococcic serum was given by some people very readily on the recognition of a few cocci forming a chain. It was well known that the antistreptococcic sera were made from virulent cultures of streptococci, and very often much serum was given in cases which were not *Streptococcus pyogenes* infections at all. One of the most difficult matters in bacteriology at the present day was the identification of those streptococci. He was at present investigating that subject from organisms obtained from scarlet fever, and on the *Streptococcus pyogenes*

aureus obtained in a general hospital, and it took from three weeks to a month to identify those streptococci. And though that was not of any particular value clinically, because the case would probably by that time be either dead or have recovered, yet in the future it would perhaps be very valuable. It was important that the profession should not label things as streptococcic too readily. With regard to the method which had been referred to of digesting the pleuritic effusions and staining for tubercle bacilli, that had been carried out, and it was found that what were originally described as tubercle bacilli were nothing more than the exudate taking up the carbo-fuchsin stain—that they were not bacilli at all. With regard to multiple empyemata, no reference was made to that subject. He remembered six cases when he was pathologist to the East London Hospital for Children, four of which went to the post-mortem room. All those cases had been operated upon and the chest drained, and doubt was expressed as to the reason they had died. In one case the empyema had been perfectly drained—but high up in the chest there was a quite clear effusion which had not been diagnosed—but was of very great interest because it was an empyema filling up a large part of the chest; the rest of it was perfectly clear effusion cut off by an adhesion. Another example was a case where, between the concave surface of the base of the lung and the diaphragm, there was a small collection of pus, absolutely shut off, on the base of the lung, while in a third kind of case—of which he had seen three examples—there was a collection of pus forming a second empyema, pointing down between the posterior border and lying on the vertebral column. They were all of extreme interest, because various causes, such as broncho-pneumonia, were thought to be present in the collapsed lung. The condition was really a localised empyema. He drew attention to another case in which empyema followed appendicitis in a child, and it was the only example of it he had seen from post-mortem examination. From the pus which was drawn off during life he obtained a pure culture of virulent *Bacillus coli*.

Dr. GEORGE CARPENTER said that of 190 cases of pleurisy with effusion under his care 114 were males and 76 were females. The fibrinous totalled 85—48 right-sided, 36 left-sided, and one double. There were 105 empyemas—50 right, 53 left, and 2 double. Of these cases 114 were 5 years old or under, 75 of them being empyemas. Of the fibrinous cases 7 died, and of the empyemas 31 died, one of them suffering from lardaceous disease. Two were cases of pyopneumothorax. Two cases of fibrinous effusion were associated with cutaneous gummata, and one boy of five developed a "white leg." Many commenced with a sudden, sharp febrile attack, 10 in 101 gave a history of a preceding exposure to wet and cold, a few the history of a fall or other traumatism. Many were caused by pneumonia, broncho-pneumonia, bronchitis, and pertussis followed by pneumonia; some were associated with scarlatina, measles, rheumatism, tuberculosis of the lungs and pleuræ, typhoid fever, diphtheria, mumps and varicella; many gave a rheumatic or tubercular family history. Of the 31 deaths from empyema there were 5 cases of pneumonia on the same or opposite side, 2 had peritonitis in addition, 1 had tubercular meningitis; 4 died of tuberculosis in one form or another: 1 of scarlatinal nephritis and exhaustion; 1 of interstitial nephritis; 2 died from exhaustion, 1 with cheesy tracheal glands; 2 died suddenly; 2 died out of hospital; 1 was undiagnosed (coma and convulsions); 2 had lardaceous disease; 1 pus in the abdomen; 1 died from pyæmia; in 4 cases post mortem was declined; 1 died of ? peritonitis; 1 case with fetid pus; 1 died on the operating table; 1

while washing out the pleura (convulsions and high temperature); 1 from abscess and gangrene of the lung. Of the 7 deaths from simple effusion, 1 had a mediastinal new growth; 1 was pyæmic (bone); 1 died from pneumonia; 3 from tuberculosis; and 1 died from exhaustion after several aspirations. The quantity of fluid was variable. In simple effusion 46 oz. in a child of six, was the most he had removed, but Heyfelder had aspirated six pints from a boy of the same age. Of pus, the average in his experience was from 8 to 10 oz., caught at the time of operation, but a good deal drained away subsequently. A common clinical type is that with physical signs of consolidation of the upper or upper and middle lobes, with deficient, very rarely absent, vesicular murmur over the lower lobe. In another type the chest may be dull from apex to base, with good but *distant vesicular* breath sounds, or *distant tubular* breathing, perhaps heard on a deep breath only, and then only expiratory; or distant vesicular breath sounds with moist râles. With this extreme effusion there may be apical resonance or hyper-resonance, the breathing clear and distant, expiration prolonged and unduly audible compared with inspiration. A sector-shaped area of resonance may be obtained over the root of the lung and its immediate neighbourhood. In another type there is dulness over the lower lobe, and deficient entry of air. Sometimes the breath sounds are distantly tubular. In either case there may be loud tubular breathing at the upper limit of dulness with friction sounds or not, sometimes with friction sounds alone, sometimes with pneumonic crackles only. Skodaic resonance can not infrequently be obtained in front over the corresponding apex, above the clavicle, below it, in both situations and sometimes behind. Skodaic resonance is also observed in basic consolidation and sometimes in apical. On the healthy side the breath sounds are extra-*puerile*. Percussion gives fluid dulness and fluid resistance, but both may be encountered over a *solid* lung. Because the dulness is not of fluid character it does not follow that fluid is not present. The note may be that of deficient resonance, and occasionally *stomach resonance* is obtained as far as the angle of the left scapula. Percussion should be light. Bronchophony contra-indicates fluid. A thickened pleura may give the signs of fluid in the chest. Displacement of the cardiac impulse is a most important guide in forming a diagnosis. In regard to the position occupied by the heart in such cases, in one autopsy on a child of six the organ was found vertically in the middle line of the body and the pericardium partially adherent to it. In another, a child of four, the heart lay more to the left of the sternum, but chiefly behind it. In another, aged 3 years, the mediastinal contents were shifted to the right without cardiac rotation. In another, right-sided effusion, aged 10 months, the heart was a little displaced to the left. Obliteration or even bulging of the interspaces happens occasionally, and is best seen by viewing the chest from above. Rarely there is fluctuation, sometimes there is œdema. Increase of cutaneous thickness may be determined by pinching the skin and comparing it with that of the opposite side. In a female of four with empyema the chest was uniformly bulged forward from the clavicle to just below the nipple, and the sternoclavicular point was loosened and the overlying skin was œdematous. In a male of three there was marked localised bulging of the lower ribs of the right side; in a boy of seven there was a fluctuating swelling over the front of the left fifth, sixth, and seventh ribs; in a girl of six it formed over the left fourth, fifth, and sixth ribs; in a boy of three perforation occurred at the seventh

left interspace in the nipple line, with commencing subcutaneous abscess; and a boy of nine had an elastic fluctuating prominence over the right hypochondriac region. None of these pulsated. Puffiness of the face and eyelids was seen in some cases. Only one of the patients had clubbing of the fingers and toes, a child of six, who had been ill for two years, and from whose chest he evacuated five ounces of pus. Temperature as a diagnostic sign between pus and serum he regarded as worthless; it might be high with serum and normal with pus. The fact that the effusion follows an exanthem, that it is associated with diarrhoea, sweating, and a sallow complexion, marked wasting, and an obviously low state of health are in favour of pus. Exploration is alone reliable. No danger need be apprehended from passing an exploring needle into a pleura full of fluid to determine the character of that fluid, but it is dangerous to pass a needle into a cirrhotic lung, and it may be dangerous to wound a pneumonic lung. In a doubtful case—a case that is open to doubt after a thorough physical examination conducted by all the means at our disposal—it is well to let the parents know beforehand that this trifling operation, which is often so helpful and usually so innocuous, is not altogether free from risk, and that the child *may* lose his life. The empyema cases were treated by incision in the seventh or eighth interspace, just outside the angle of the scapula—the majority by simple incision, but some by excision of a couple of inches of rib. In two or three instances Estlander's operation was necessary. A large-sized rubber drain about the diameter of the little finger, to which a rubber shield was fixed, was passed into the wound just sufficient to keep it patent and allow free drainage. When the discharge became serous—but not until then—and a drachm or so of it visible on the dressing the tube was discarded. The time required was usually a few days—on an average a week or ten days. Although many cases were treated by simple incision, he was in favour of removing a small portion of rib, because it enables digital examination and facilitates drainage, unless the case be putrid, when the exposure of cancellous bone is not advisable. When the tube has been removed a rise of temperature does not necessarily mean imperfect drainage or re-accumulation. In several cases it was due to scarlet fever or measles, in others to pneumonia, tonsillitis, general tuberculosis, or peritonitis, sometimes to no apparent cause, and in others it appeared to be owing to a small superficial collection of pus about the wound. Even if there is *apparently* a cavity of some extent, the discharge being trifling and serous, an attempt should be made to banish the tube. After operation there is usually a fair entry of air, with vesicular breath sounds, but these may be conducted sounds; he had heard such in a child with a completely collapsed lung. When the upper lobe is consolidated the physical signs persist for a variable period. Below the wound there may be distant tubular breathing, vesicular murmur, or râles, according to the state of the lung. When the cavity is completely sealed there may be deficient entry of air and impaired resonance. A permanent sinus may denote necrosis of a rib; in one child many inches of rib were exfoliated. He attached great importance to getting the patient up and about as soon after operation as possible—a child should not stay in bed a day longer than necessary. While admitting that small empyemata may recover by aspiration only repeated once or more, he did not think that there are any advantages attached to this method, and there are many disadvantages. With simple effusions, if the pleural cavity be full, aspiration should be performed at once for fear of sudden death. Simple fluid should not be

left in the chest *in statu quo* longer than three weeks lest the lung contract adhesions. If there be fever, the fluid should not be aspirated lest there be a re-accumulation. Aspiration should cease as soon as the child commences to cough. A sharp, hollow needle must never be used. Many of the cases were successfully treated by limiting the fluid intake to half a pint daily and giving the food as dry as possible. Scott's ointment applied to the chest and iodide of potassium given internally appeared to him to be of some therapeutic value.

MR. ARTHUR EDMUNDS said he desired to exhibit an apparatus to demonstrate the importance, in relieving empyema, of making the opening into the chest sufficiently free, not only to allow of the pus being forced out voluntarily, but for other reasons. Although everyone had realised that the chest did fill in coughing and in violent expiration, he did not think it had been sufficiently realised that that method of expiratory filling of the affected lung was one which was constantly taking place. When the lung on the other side was connected with the affected one by a bronchus, and when the passage outwards was free, as in paralysis of the larynx, the movements of the chest-wall would have no effect on the movements of the other side; alterations in the tracheal pressure were not able to affect that lung. But if there was an obstruction in the outflow from that tube, which took place by the movements of the vocal cords, then on expiration the unsupported lung where there was an opening into the chest-wall would move also. That, he believed, took place not only in violent coughing, because he had shown by experiments on animals that after opening the chest-wall and setting up an irritative reflex from the pleural cavity, the examination of the vocal cord was sufficient to cause blockage; so that while the lung on the sound side was collapsing, the lung on the other side was expanding. That was the process which he felt sure was going on during the whole course of healing of an empyema.

Editorial.

SCHOOL LIFE IN LONDON.

THE Reports of Dr. Kerr and Dr. Thomas, the medical officers to the Education Department of the London County Council, are very suggestive and instructive.

The subject that has been so much before the public of late—the physique of the uprising generation—is touched upon, but so far it has been impossible to conduct any extensive investigation into the development of London school-children, and the London County Council, perhaps with some reason, has not seen fit to provide aid for such investigation. This, however, is a national question, and it would be of great interest and value to ascertain whether school-children in London are inferior in height and weight and other

physical, and perhaps mental, features to school-children in various parts of rural England. Knowledge is power, and knowledge of ourselves must be one of the first essentials to a people that desires to retain its position amongst the nations of the world. While, however, the Report does not give the result of widespread investigation, such facts as the following are suggestive. The mothers of 124 boys above the average in physique went out to work in only 13 instances, whereas the mothers of 110 boys below the average worked outside the home in 57 instances. Another striking observation is the comparison of the high infantile mortality curve with the curve of physical development. Comparison of these curves shows that the physical development of children born in a district during a year of high mortality is lower than that of children born in more healthy years. It appears, therefore, that conditions which cause the death of a large number of children produce a lasting deleterious effect upon a larger number who survive.

Many interesting details are given of the methods of instruction of infants. Of these we may quote the following: "As far as possible all work in the Infant Department should be distant work; there should be nothing that requires the child to bend its head over, and it should learn the letters so perfectly that it could write any letter as large as its hand on the blackboard with its eyes shut." The Report further adds that the young child has an undeveloped eye, and that it needs greater efforts of muscular accommodation than in an adult. This difficulty of accommodation leads children to substitute size for clearness, and to get a larger image bring the eye close down to their work, "thereby learning the worst of school habits." Hence the necessity for large and distant work.

Of trachoma the Report mentions that this infectious disease of the eye has been known from very early times, and in the 16th century B.C. is often mentioned in the Ebers papyrus as then existing in North Africa. Although the disease was known in Europe before the days of Napoleon, apparently the French troops on their return from his invasion of Egypt spread the disease widely over the Continent. In this country the school-children that are affected are, almost without exception, the children of alien immigrants, and in them the disease has generally been contracted abroad. The

Report says of the disease "It is imported, as practically every case seen is foreign-born."

Of wider spread infectious diseases there is, as would be expected, a full report, and interesting investigations of outbreaks of measles have been conducted by Dr. Thomas. Measles being a disease from which a very small proportion of children escape, drastic measures of dealing with it must frequently seriously interfere with school-work. In order to see whether strong measures would be likely to be of benefit, in half the Woolwich district it has been attempted to suppress measles by class closure, and in the other half the children affected alone have been excluded. In estimating the probable value of school closure, it was soon found that the number of children susceptible to measles had to be taken into consideration, and apparently in London at the present time the disease only spreads amongst classes of children under five years of age. Seventy-five per cent. of the children above the age of five are said to be protected by a previous attack. It is considered, therefore, that if children under five were excluded from school, closure for measles would only in exceptional instances be necessary in London schools. When measles has appeared amongst school-children under five, if closure of the school is to have any effect, it must be closed early, "before the first crop falls."

More than once the Report refers to the difficulty which arises from the "attendance" standpoint. The teachers are paid largely upon an "attendance" basis, and naturally are loth to see children excluded from school without sufficient reason. It can easily be understood that teachers, instead of being intelligent colleagues of the medical officers, may, in some instances, hamper them in their work by their failure to interest themselves in matters that may lead to exclusion of children and the curtailment of salary.

Abstracts from Current Literature.

Pathology.

Focal softening in the medulla in diphtheria (*Med. Chron.*, June, 1905).—R. B. Wild.—A boy, aged 14 years, died from what was supposed to be a rapidly progressive diphtheritic paralysis about three weeks after a mild attack of diphtheria. The autopsy showed congestion of the brain

which was soft in consistence; there were several white tubercles at the bifurcations of both Sylvian arteries, but no signs of meningitis. The floor of the fourth ventricle presented a patch of grey softening, $\frac{1}{3}$ by $\frac{1}{4}$ inch; it was about half-way down the ventricle, on the left side, and it extended in depth nearly $\frac{1}{4}$ inch, having in the centre a distinct bright red hæmorrhagic focus. The rest of the brain was normal. The lungs were congested, and there were a few old pleural adhesions. The other organs were normal, and the vagi and phrenic nerves showed no degenerative changes.

J. PORTER PARKINSON.

Early Paget's disease ('*Bull. de la Soc. Centr. de Méd. du Nord*,' p. 161, 1905).—**Ingelrans**.—The disease first appeared when the patient was ten years old. The one tibia became elongated, flat, and curved; there was compensatory curvature of the spine. The tibia was tender, with absence of all signs of chronic osteomyelitis and rickets, the condition being due to early Paget's disease affecting one bone, and is further proof of the identity of this disease and hereditary syphilis of bone. Similar cases are quoted from Lannelongue, Charneil, and Raviert.

T. P. BEDDOES.

Three cases of salivary infection in the new-born ('*Arch. Gén. de Méd.*,' August 29, 1905, No. 35, p. 2190).—**G. Durante** describes three cases of this rare affection. The first was a parotid infection due to staphylococci, the second a sublingual infection due to Pfeiffer's influenza bacillus, and the third a submaxillary infection due to streptococci. Pus was present in the first two, but only a hæmorrhagic infiltration in the third, the only fatal case; this case was the only one with pyrexia, but even here it was slight. The ages at onset were fifteen days, ten days, and fifteen days respectively. In all three the buccal route of infection seemed the most probable.

A. ERNEST JONES.

Observations on the thymus gland in children ('*Lancet*,' October 7, 1905).—**J. M. Fortescue-Brickdale** contributes a very important paper on this subject, covering the results of his observations on fifty cases. These were taken consecutively in the ordinary course of pathological work. He found the average weight of the gland to be 128.7 grains—the smallest, from a child, aged 3 months, weighing 30 grains, and the largest, from a child, aged 10 months, weighing 398 grains. He considers that the usual weight of the gland at birth is below 100 grains, and considers that larger glands are probably examples of some pathological condition. The normal functional extinction of the thymus gland takes place by a process of fibrosis. In various atrophic conditions this process occurs with great rapidity, so that an estimate of the nutrition of an infant may be formed by an examination of the thymus glands. He examined twelve thymus glands in marasmic infants, all under one year of age. They were all considerably under the normal body-weight. The average weight of the gland was 38.5 grains, the smallest being 20 grains and the largest 72. There were in all but two cases of marked fibrosis of the organ, the interlobulated septa being much thickened, as was the perivascular connective tissue. The lymphoid cells were also decreased in number, their place being taken by endothelial and young connective-tissue cells. The cortex and medulla could not be differentiated. In the two exceptions the thymus showed only very slight fibrosis in one case and none at all in the other, although the lymphoid cells were diminished. Regarding the fibrotic changes which occur in acute disease, the writer had twenty cases of children dying from such acute cardiac con-

ditions as pneumonia, diphtheria, peritonitis, acute diarrhœa, and vomiting, etc. In six cases the fibrosis was either absent or very slight, in three it was present but badly marked, and in ten it was considerable. In some of these cases other conditions might have accounted for the fibrosis, such as rachitis. When the gland is enlarged, certain symptoms are produced, such as laryngismus and stridulous breathing, and an enlarged thymus is often associated with general hyperplasia of the lymphoid tissues of the body, and not infrequently with rickets. He concludes that enlargement of the thymus and other lymphatic structures in the body may occur as the result of acute toxic absorption or a more chronic condition. He finds, as regards the pathological histology of the gland, that in some conditions, especially tuberculosis, cells with basophile or neutrophile granules seem to replace the eosinophiles. In congenital heart-disease eosinophiles are not found in the thymus. True hyaline degeneration very occasionally occurs in Hassall's corpuscles. Fatty degeneration of the cells is common, and appears often to affect the peripheral zone of the lobules.

JAMES BURNET (Edinburgh).

Medicine.

Family congenital word-blindness ('*Soc. de Neurol.*,' July 6, 1905. '*Arch. de Neurol.*,' vol. xx, August, 1905, p. 131).—**Taquet** and **Robert Foy** showed two children affected with this rare condition, which they attributed to a defect of development of the first left temporal region. The patients were boys of the age of five and three.

A. ERNEST JONES.

Congenital malformations in a new-born infant (*Comité Méd. des Bouches-du-Rhône*, May, 1905; '*Arch. Gén. de Méd.*,' September 12, 1905, p. 2353).—**Vallette** gave an account of an infant who had the following abnormalities: a supplementary digit on the inner side of each little finger and joined thereto; webbing of several toes; segmentation of the large intestine; absence of the anus and lower part of the rectum; rudimentariness of the sigmoid curve, which ended above by a blind sac at the level of the left psoas; ascending colon and cæcum situate on the left; absence of the transverse and descending colon. (Meeting June, 1905. Reference v.s., p. 2360.) **Pieri** and **Riss** described the following changes found in a new-born child: absolutely imperforate anus; imperforate anterior extremity of the penile urethra; idiot hand on the left side, with absence of the radius and atrophy of the lower end of the humerus, and with the existence of only four fingers and their corresponding metacarpals; on the right hand there were only four fingers, but in place of the thumb was a small cutaneous tubercle.

A. ERNEST JONES.

Acid intoxication in infancy and childhood ('*Arch. of Pediat.*,' August, 1905, p. 561).—**J. L. Morse** discusses the literature and observations on acid intoxication. He concludes that acetone bodies are not present to any extent in the urine of comparatively healthy infants and children. They appear under approximately the same conditions as in adults. Certain digestive disturbances associated with the presence of acetone bodies in early life have peculiar symptoms, probably due in part to acid intoxication. The acid intoxication is probably secondary, not primary. Similar symptoms occurring in cases of recurrent vomiting are also associated with acid intoxication, which is presumably always secondary

to some abnormal condition not necessarily intestinal in origin. The amount of acetone bodies is relatively much smaller than in diabetes. Their presence in connection with gastro-intestinal symptoms and with recurrent vomiting is of importance.

EDMUND CAUTLEY.

Eye symptoms of infantile scurvy (*'Arch. of Pediat.,' August, 1905, p. 577*).—**Irving Snow** reports a case of severe proptosis of the right eye in a baby, aged 9 months. The cornea was cloudy; upper and lower lids were black and swollen, not covering the eyeball; no chemosis or discoloration of the conjunctiva; eyeball freely movable. There was moderate proptosis of the left eyeball, with swollen, discoloured lids. Many other signs of infantile scurvy were present, and death ensued in twenty-six hours. On post-mortem examination of the right eye, a huge hæmatoma was found between the periosteum and bone of the orbit, filling the pyramidal space behind the eye and extending nearly round the whole orbit. This hæmatoma had become infected. A smear from the clot showed pus and a bacillus like the influenza bacillus. Sudden exophthalmos in a baby should always suggest scurvy. It may be the first indication. Its rapid onset indicates hæmorrhage. The eyeball is freely movable, not anchored by inflammatory exudation as in orbital cellulitis. The author refers to a few similar cases.

EDMUND CAUTLEY.

Therapeutics.

Whey mixtures in infant feeding (*'Canadian Journ. of Med. and Surg.'*).—**H. T. Machell**, of Toronto, advocates the use of whey as a basis for infants' food, in order to exclude the indigestible casein, the proteid of whey consisting of lactalbumin, which does not tax the infant's digestion. The fat is added in the form of cream; milk-sugar is also added. By varying the proportion of these the milk can be modified after the plan just suggested by Rotch. An important detail is that the rennet of the whey must be destroyed by heating to 155° F. before the cream is added to prevent coagulation; the heat must not be carried above 160° F., or the lactalbumin will be coagulated. The smallness of this margin of temperature makes it imperative that the procedure be carried out by skilled persons.

J. PORTER PARKINSON.

A case of tetanus neonatorum cured by subcutaneous injections of phenic acid (Bacelli's method) (*'La Pediatria,' June, 1905, p. 451*).—**N. Fedele** made the following communication to the Congress of Children's Diseases, at Rome, April-May, 1905: A male infant, aged 13 days, born at term. The cord had been cut with a pair of common scissors without any antiseptic precautions. On the sixth day difficulty in sucking had been noticed, followed after two days by trismus and then general tetanic convulsions. The umbilical cicatrix showed a purulent secretion, in which Nicolaier's bacillus was discovered. After discussing the differential diagnosis between true tetanus, strychnine poisoning, eclampsia, tetanus, and cerebro-spinal meningitis, the author describes the cure. The infant was placed in a dark room and kept quiet, two warm baths were given daily and injections of phenic acid in sterilised oil 3 per cent. made into the buttocks. For the space of forty days a Pravaz syringe-ful was injected four to ten times daily, according to the intensity and frequency of the

attacks. Neither carboluria nor albuminuria occurred. Recovery took place gradually in about forty days. An extensive bibliography on this subject is given.

VINCENT DICKINSON.

The action of citrate of sodium in natural and artificial feeding (*'La Clin. Infant.,'* August and September, 1905, pp. 487 and 555).—**R. Aibinder**, in her *'Thèse de Paris,'* combats the views of Poynton and Wright, who consider that the citrate of sodium precipitates a part of the lime salts contained in the milk, and thus retards or diminishes its coagulability. The authoress, repeating the experiments of Poynton, but using bladders instead of test-tubes, arrived at the same results, and noticed at the same time a difference between the curd of unboiled and boiled milk, the latter being much more compact. She found that the addition to sterilised or raw milk of progressively increasing quantities of citrate of sodium did not in the least modify the coagulation of the milk. In order for the citrate of sodium to exercise its anti-coagulant action, it is necessary for it to act in the presence of gastric juice, which was replaced in the experiments by pressure and hydrochloric acid. The English observers explain this action by the precipitation of the salts of lime, but the citrate of sodium, on the contrary, dissolves them. The authoress was led to discover this error by Vaudin's demonstration of the existence of citric acid in milk in the form of alkaline citrates. It is sufficient to add chloride of calcium to citrate of sodium to show that there is no trace of precipitate; on the contrary, if the salts of lime are precipitated by the addition of ammonia, the precipitate is re-dissolved on the addition of citrate of sodium. Arguing that if the addition of citrate of sodium in presence of gastric juice retards coagulation by means of the precipitation of the salts of lime, these salts ought to be found in the coagulum, experiments were made in which only a faint trace of salts of lime was found. On the contrary, almost all the lime was found in the whey. This proves that the citrate of sodium acts by suspending the lime in such a way that it cannot exercise its influence in promoting the coagulation of the casein. It renders the digestibility of the curd more easy and may be successfully employed, not only in artificial feeding by cow's milk, which normally contains more lime than human milk, but also in maternal feeding when the mother's milk is not well borne. A number of cases are given, a solution of 1 in 60 in doses of a coffee-spoonful to a soup-spoonful being given with each bottle or with each feed. The solution should be always freshly prepared and with distilled water.

VINCENT DICKINSON

The chemistry of cow's milk (*'Arch. of Pediat.,'* 1905, p. 508).—**L. L. van Slyke** states that analyses of milk furnish little real information, unless something is known of the history of the samples. Analyses made in other countries may have little or no value when applied to milk produced in the United States. Normal cow's milk varies very much in composition. The percentage of water varied from 84.6 to 88.2 in different breeds of cattle, from 82 to 90 in single milkings of individual cows, from 84 to 89 during the period of lactation, from 86 to 88 in the milk from herds of cows; average milk contained 87 to 87.25 per cent. The percentage of fat ranged between 3 and 5 in the milk from herds of cows, from less than 2 to over 10 in single milkings of individual cows. The true average is about 4 per cent., but varies in different breeds from 3.36 in Holsteins to 4.44 in Shorthorns and 5.60 in Jerseys. The percentage increased some-

what as lactation advanced up to ten months, and increased with decrease in the intervals between successive milkings. As usually found, the foremilk was the poorest and the strippings the richest in fat. The percentage also varies in the milk from different quarters of the udder. The nitrogenous substances are casein, albumin, globulin, and galactase. The casein is combined with calcium and should be called "calcium casein." It exists in milk in the form of solid gelatinous particles in suspension. In the process of curdling it is converted into casein lactate. By adding acid to milk the casein is set free from its combination with calcium. If more acid is added, it unites with the casein forming a salt of casein. Such salts are soluble in excess of acid. Dilute alkalies act on free-casein and its acid salts and form compounds soluble in water, such as plasmon nutrose, santogene, eucasein, galactogene, etc. The skin formed on the surface of milk heated over 140° F. is due to calcium casein, and not to albumin. It is a kind of evaporated milk. Calcium casein is coagulated by rennet, forming paracasein, or, more properly, calcium paracasein. This is merely a physical change depending on the presence of soluble lime salts. In coagulation by acids a new and different body is formed—a salt of the acid. Alkalies, alkaline salts, and common salt retard rennet curdling. Lime-water, added in quantity sufficient to render the milk neutral or faintly alkaline to phenolphthalein, causes the formation of a basic calcium casein, which is not acted on by rennet even in the presence of soluble lime salts. Rennet coagulates milk best at 106° – 108° F., and less completely at higher or lower temperatures. The curd is softest at high and low temperatures of coagulation. Galactase is a ferment, somewhat like pepsin, and is present in very small amount. Milk globulin is only present in minute quantity. Milk albumin and calcium casein vary much in their relative proportions, but on an average there is one part of albumin to 3.6 of casein. The total albumin varies from 0.5 to 0.9 per cent.; average 0.7 per cent. The casein varies from 2.5 to 6 per cent.; average 3.2 per cent. The percentage of fat in milk can be easily estimated by a small Babcock tester. The total percentage of casein and albumin is from 0.10 to 2.05 per cent. less, the difference increasing with the rise in fat percentage.

EDMUND CAUTLEY.

Otology, Laryngology and Rhinology.

Adenoids in infants (*Journ. de Méd. de Bordeaux*, August 27, 1905).—**E. J. Moure.**—These are often unrecognised, as the typical facial aspect is undeveloped; the resulting defect of hearing is not usually appreciated, or advice is not sought, from the idea that the hearing will improve with age. The symptoms that attract attention are—sleeping with open mouth, snoring, stridor or raucous respiration, inability to take the breast except for short periods. Difficulty of breathing varies with the weather, being worse in damp weather and consequently during winter and spring, improving when the weather is dry or hot. The voice is hoarse, like a frog's croak. The diagnosis from chronic coryza, which is rare in infants, is founded on the absence of discharge, and from syphilis and tubercle by the absence of constitutional symptoms. Difficulty of treatment results on the infant naso-pharynx being too small to admit of digital exploration, so that it is impossible to ascertain that everything has been removed at one operation. An instrument is recommended that secures the removal of detached fragments and that also consists of curetting.

Trouble in breathing or feeding may necessitate operation at the age of two or three weeks, otherwise operation may be postponed till the seventh or eighth month, care being taken to avoid a time when the symptoms are acute. It is advisable to warn parents that the operation may have to be repeated when the child is four or five years old. In fact, it is better to postpone operating till one complete operation can be performed.

T. P. BEDDOES.

Surgery.

Tubercular arthritis in children (*'La Tribune Médicale,'* September 9 and 16, 1905).—**A. Broca.**—In the paper prepared for the International Surgical Congress at Brussels surgical interference is deprecated. The disease is general rather than local. As soon as possible, consistent with immobilisation of the joint, open-air exercise should be taken, and even when the implication of one of the lower limbs prevents walking the other limbs can be exercised. Though residence at the seaside is advantageous, it is not indispensable. Hydrarthrosis of the knee in children, not due to injury, is of tubercular origin. After puncturing, to verify the diagnosis by the microscope, the fluid should be evacuated, and 10 per cent. iodoform ether injected and the limb put up in plaster; this allows the patient to be out of bed in from six to eight weeks. After not less than six months the splint may be dispensed with, as the joint is stiff but not ankylosed. From the very first plaster of Paris is better than silicate of potassium, leather, or celluloid for immobilising the disease. This procedure, even when an anæsthetic is used during the application of the splint, entails less risk of general infection than an open operation or gradual rectification, though a rise of temperature for some days is usual. In disease of the spine or upper limb the use of plaster splints reduces the confinement to bed from two years to six months. As an adjuvant to the use of plaster splints local pressure is beneficial; a window is made in the splint and the affected joint is covered by cotton-wool, firmly bandaged. Every fortnight the joint is examined, and, if required, counter-irritated by iodine or mercury ointment. If the swelling of the joint does not subside, injection of iodoform ether is of service. But it is not desirable to inject strong solution near the joint to act as counter-irritants. Arthrectomy, even of the knee or elbow, is seldom satisfactory; excision is not much better. The most conspicuous indication for operation is the existence of localised accumulations of pus, with or without the presence of fistulæ; in neglected cases septicæmic infection may occur, calling for prompt operation to remove the infected osseous foci. The joints should be immobilised as long as swelling and spontaneous pain persist, though with every care temporary relapses are usual before permanent use of the limb is secured. Children are but little tolerant of forced manipulation.

T. P. BEDDOES.

Congenital flat-foot (*'Journ. de Méd. de Bordeaux,'* August 6, 1905).—**Princeteau.**—The rectification of the deformity was secured by two operations. The first consisted in section of the tendo achillis, and a wedge-shaped piece of bone from the tibia of a cat grafted into the space between the inner borders of the scaphoid and astragalus. The second operation had for its object the shortening of the external border of the foot. The astragalo-scaphoid joint was opened and the foot put up in plaster. Skiagrams showed the grafted bone in position. But, as this is the first operation of

the kind, some years must elapse before it can be decided that the graft is permanent.

T. P. BEDDOES.

Sarcoma of the vagina in infants ('*Rev. Méd. de la Suisse Romande*, August 20, 1905).—**Aubert**.—A clinical description is given of the author's case of proliferating sarcoma which filled the vagina with numerous soft, friable, pedunculated masses. Seventeen cases from young children are collected. The usual initial seat is the anterior wall of the vagina, with rapid invasion of the bladder and urethra, whereas in adults the most common seat is near the neck of the uterus. The condition is usually at first diagnosed as simple vaginitis or benign warts. Israel successfully removed the uterus and vagina by the sacral route. Schuchardt removed the lower half of the posterior vaginal wall without a return in three years. These two cases are exceptions, as usually the cases run a rapid course, whether operated on or not.

T. B. BEDDOES.

Popliteal aneurysm cured by Hunter's operation ('*Lancet*, October 21, 1905).—**Owen** records the exceedingly rare condition of popliteal aneurysm in a boy, aged 15 years. About eleven months before the patient broke his left femur a little above the knee, according to his parents' statement, and this was borne out by an X-ray photograph shown to Owen. Now and then the patient felt a strange "click" in the knee, and he said that sometimes the muscles of the thigh contracted with so much vigour that he could not keep the leg straight and the knee sometimes remained rigidly bent for twelve hours. On examination a popliteal aneurysm was found filling up the hollow at the back of the knee and bulging up among the hamstring tendons. Compression on the femoral artery caused the swelling to disappear, and on removing the compression the blood slowly filled up the sac again with such force that it seemed ready to burst. The boy experienced considerable throbbing behind the knee, but this did not trouble him. Operation was resolved upon, and, accordingly, as there was not room to tie the popliteal, the femoral artery was ligatured in Hunter's canal. Two silk sutures were put on and the artery divided between them. Rapid recovery took place. The causes of aneurysm in early life are: (1) Softening and yielding of the arterial coats around a septic clot which has been cast adrift from a valve in the heart, (2) stretching of a vessel at an atheromatous patch, (3) damage to the artery by direct injury. Aneurysms, however, are very rare in children.

JAMES BURNET (Edinburgh).

Removal of a large pin from the lung by transpleural pneumotomy ('*Lancet*, September 9, 1905).—**R. H. Russell** and **W. R. Fox** describe the case of a boy, aged 12 years, who got a pin three inches in length into his trachea. The pin, three weeks later, was found to be lying in the left bronchus, the head lying two and a half inches below the bifurcation, the point projecting into the trachea. Eventually it became imbedded in the lower lobe of the lung. A curved incision was made, and a portion of the left eighth rib was removed. The pleura was then opened into. The lower lobe was grasped near its root and drawn towards the opening. The head of the pin was located, and an incision made in the lung over this spot. The pin was then easily withdrawn by means of a pair of sinus forceps. The patient made a fairly rapid recovery. The case affords a capital illustration of the value of X-ray examination to the surgeon.

JAMES BURNET (Edinburgh).

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Original Articles.

SOME SURGICAL CONSIDERATIONS OF MECKEL'S
DIVERTICULUM.

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THE relative frequency of the occurrence of Meckel's diverticulum has been estimated by many observers. Treves found it in 2 per cent. of bodies examined, Quain gives it as 1 in 50, and Mitchell found it present in 39 cases out of 1635 examined. It may be said to occur, therefore, in about 2 per cent. of bodies. The diverticulum is attached to the lower end of the ileum in the majority of cases, and its actual point of origin has been measured by many observers. But all these measurements refer to the adult, and as far as I know there are no statistics which show its point of origin in the child. From a practical point of view it is important to remember that it arises, nearly always, from the lower ileum which occupies the lower abdomen, and hence surgical affections of the diverticulum cause symptoms referred to the lower abdomen, and somewhat towards the right side. It is said that the diverticulum has been seen located anywhere from the pylorus to the ileo-colic valve, and to have been found in the cæcal region as well as upon the œsophagus. Lamb found the record of fourteen cases where it had been found in the jejunum, and of seven where it had been found in the duodenum. Treves is inclined to doubt such diverticula as being those originally

described by Meckel, and regards them as congenital diverticula having a distinct origin, those in the duodenal region especially having an origin in association with some aberration of the hepatic diverticulum. Developmentally it is easily seen how Meckel's diverticulum can have a very varied point of attachment to the small intestine, depending upon the relative growth of the primitive enteric loops. The only point of practical importance in connection with the origin of the diverticulum is to note its most common site from the lower ileum and the region of the abdomen affected in the various pathological conditions to which the diverticulum is subject.

The anomalies of Meckel's diverticulum may be classed as follows:

- (1) Persistence of the entire duct as a patulous canal.
- (2) Persistence of the distal part of the duct connected with the navel.
- (3) Persistence of the proximal part of the duct—Meckel's diverticulum—which may be attached to the umbilicus by a cord (remains of the omphalo-mesenteric vessels), may lie free at its distal end, or may acquire secondary adhesions anywhere in the neighbourhood, such adhesions being connected with the end of the diverticulum or with the omphalo-mesenteric remains.

(4) Persistence of the omphalo-mesenteric vessels, forming a solitary band in the abdomen, connecting the intestine to the umbilicus, or the umbilical attachment breaking free and acquiring a fresh adhesion; or, it is said, the intestinal connection breaking free and hence forming a solitary band stretching across almost anywhere in the abdomen.

- (5) Persistence of the middle part of the duct.

The diverticulum varies considerably in length. It is nearly always attached to the intestine opposite its mesenteric aspect, but it has been seen arising laterally, or even at the mesenteric border, forming an intra-mesenteric organ, and has been credited with the production of certain intra-mesenteric cysts. This is disputed, however, by some.

Excluding band-obstruction, the surgical considerations of Meckel's diverticulum may be classified as follows:

- (1) Persistence of the tube in whole or in part, its lumen opening at the umbilicus.
- (2) Inflammation of the diverticulum—diverticulitis.
- (3) Volvulus of the diverticulum.
- (4) Intussusception of the diverticulum.
- (5) Hernia of the diverticulum.

(1) *Persistence of the Diverticulum, in whole or in part, open at the Umbilicus.*

This condition is not so very infrequent. The whole diverticulum may form a patulous canal, communicating with the navel, discharging fæces here, forming thus a fæcal fistula. This is noticed generally soon after birth, shortly after separation of the umbilical cord. Indeed, the end of the diverticulum is not infrequently tied in the cord in such cases. Sometimes it is not until later that the umbilical cicatrix breaks down and a fistula forms. Pitts records a case where the discharge appeared when the infant was 3 weeks old. Dreifuss records a case of a child, aged 9 months, who, after some inflammatory process around the umbilicus, developed a fistula. Other cases are also recorded where the fistula was not formed in the first few days, but at a later period; the proof that such cases are in association with Meckel's diverticulum seems conclusive. The quantity of fæcal matter varies considerably—sometimes large quantities, at others very little only is passed, and that only occasionally. The lumen of the tube and its orifice of communication with the intestine vary in size considerably. The intestinal end of the tube may be obliterated, its distal part only being patent, a fistula discharging a little mucus thus forming, into which a probe may be passed a variable distance. At times there is no sinus, but a granuloma or umbilical polyp is present. The origin of this from the diverticulum is proved by microscopical examination.

The subjects of these anomalies are predominantly of the male sex. Strasser found that in thirty-nine cases in which the sex was stated only five were females. The infants are otherwise perfectly formed, other congenital deformities being very infrequently noted. The prognosis of this condition as regards life is good. The infants thrive, and the small amount of intestinal contents escaping at the umbilicus does not seem to affect them materially in any way.

Occasionally even in a completely patent diverticulum spontaneous healing occurs. This was so in Pitts' case, where the discharge ceased spontaneously at the age of seven years. Similar cases are referred to by Strasser and Hubbard. Simple measures are sometimes sufficient to effect a cure. Barth quotes three cases cured by simple means. Marshall closed the fistula after refreshing the edges and removed the tumour by the galvano-cautery. In umbilical polypi removal by scissors has often resulted in cure, as also cauterisation and compression. Such treatment ought only to be carried out in cases in which a fistula is absent. When a fistula is present, and

most certainly where this communicates with the intestine, such practice is dangerous and ought to be condemned. The radical operation should be performed here. This consists of excision of the diverticulum and closure of the intestine. Successful cases are recorded by Hubbard, Dreifuss, Sträter, and others. Sträter has collected twenty-two cases from the literature in children from four weeks to five years of age: in three cases death occurred.

In some cases certain complications occur. The mucosa may prolapse; hæmorrhage has been described as excessive on more than one occasion. More interesting and more serious than these are the cases where an intussusception has occurred through the umbilical ring, causing acute intestinal obstruction. Golding-Bird records the case of an infant, aged 4 weeks, through whose navel a red protrusion was seen; the protrusion increased in size and altered in character. Its appearance corresponded with that of an intussusception. It was the distal part of the bowel which was invaginated, and Golding Bird regarded this, therefore, as probably unique, since in the other cases recorded it was the proximal end. The child, when seen, was too ill to stand a laparotomy, and died without any treatment. Barth has recorded a case of intussusception. Morshead has recently recorded two interesting cases. The first case is that of an infant who had a mulberry-coloured protrusion half an inch in length at the umbilicus: the probe passed down in the direction of the bladder for two inches, and a little pale fluid came out. It was thought to be a condition of patent urachus. When three months old the protrusion increased, and a condition of strangulation took place. The appearance then presented was one of two sausage-shaped projections of congested intestine at the umbilicus, about two and four inches in length respectively, continuous with one another at their base. The mucous surfaces of the gut were external and bled freely. The peritoneal cavity was opened at the left of the umbilicus, and the two pieces of gut reduced by traction and kneading, an inverted Meckel's diverticulum, through which the intussusception had taken place, being the last portion to be reduced. The invaginated intestine measured ten inches in length, three inches coming from above and seven inches from below the diverticulum. The diverticulum itself was one inch long. The second case is that of a male infant, aged 10 weeks. Protruding from the umbilicus were two sausage-shaped swellings of almost gangrenous intestine. The rupture had existed since birth, and had increased recently owing to severe coughing. The mass was excised and the intestine united to the peritoneum of the abdominal wall, with a fatal result. An examina-

tion of the parts removed showed a Meckel's diverticulum springing about nine inches above the ileo-cæcal valve and adherent to the umbilicus. The umbilical ring gave way from coughing and an intussusception occurred into the diverticulum. The intussusception was double, about equal portions of intestine above and below the diverticulum having been invaginated.

(2) *Inflammation of the Diverticulum—Diverticulitis.*

Inflammation of the diverticulum is a condition of some rarity. The literature on the subject is not very extensive. Monographs have been written by Blanc, Rebentisch, and Denecke; isolated cases have been recorded by others. Blanc gives the condition the appropriate name of "diverticulitis." The following two cases have recently been under my care:

CASE 1.—Female child, aged 13 years. The illness commenced abruptly with acute abdominal pain, sickness, and fever. The pain was centred around the umbilicus and later on the lower abdomen. The sickness abated after twenty-four hours. The child was admitted to the hospital on the fifth day of the illness. The temperature had been elevated throughout the illness, and on admission was 103° , the pulse 112. She complained of pain in the lower abdomen. The abdominal movements were somewhat restricted, especially below. On examination of the abdomen a swelling was felt in the hypogastric region, more towards the right than the left side. This was tender and gave a dullish percussion note. The diagnosis made was suppurative appendicitis. The one point which I commented upon at the time was the situation of the swelling, more towards the mid-line, the right iliac fossa being quite empty. At the time I thought very little of this, having on many occasions seen an appendix abscess in a similar position in children.

I made an oblique incision across the abdomen over the swelling, turned the rectus forwards, ligated the epigastric vessels, and opened the peritoneal cavity. Diffuse fibrinous peritonitis glued the intestinal coils together, and on separating these a very distended coil of intestine of a bluish colour was seen lying over the right brim of the pelvis. On separating this and drawing it up to the surface it was found to be bound down by a cord, running from the end of it to the pelvis; this was divided and the intestine drawn outside the abdominal cavity. The distended bluish coil was then seen to be an acutely inflamed Meckel's diverticulum, having a very broad attachment to the intestine. The intestine to which the diverticulum was attached

was resected, and an end-to-end anastomosis performed by two rows of sutures. A small drainage-tube was left in the peritoneal cavity, and the wound closed. The following day the child appeared very ill, suffering from acute abdominal distension and vomiting, and had all the appearances of acute peritonitis. Food was withheld from the stomach, enemata were given; the sickness ceased and the abdominal distension disappeared, the child making an uninterrupted recovery.

The diverticulum measured about four inches in length; it was acutely inflamed, there was no obvious ulceration nor constriction.

CASE 2.—A female child, aged $11\frac{1}{2}$ years. Six months previously the child had an attack of acute abdominal pain, sickness, and fever. This lasted some ten days, and was considered to be acute appendicitis. It was noticed, however, that the pain and tenderness were more hypogastric in situation than in the right iliac fossa. A tumour was not noticed. The present illness had a similar abrupt onset, and the symptoms were identical with those of the former illness. When seen on the third day of the illness, the signs and symptoms were very similar to those of Case 1. An abdominal swelling was obvious, occupying a position as in Case 1.

An oblique incision was made over this as in Case 1. Some local, not limited, peritonitis was present. An acutely inflamed diverticulum was again found. This was in places very intimately adherent to neighbouring intestinal coils. These adhesions were not recent, and I regarded them as the remains of the former attack of peritonitis, which must be considered as having an origin in the diverticulum. The appendix was seen in this case and was healthy. The diverticulum was separated with some little difficulty, and was cut off from the intestine, the hole in the latter being closed with two layers of suture. The base of the diverticulum was not so broad in this case as in Case 1. A drain was left in the peritoneal cavity, and the wound closed. The child made an uninterrupted recovery. The diverticulum was about three inches long, and had a free communication with the intestine. There was no obvious ulceration nor constriction. Its distal end was free, and not adherent by any remnants of the omphalo-mesenteric vessels.

In reviewing the literature of diverticulitis, it appears that the condition is less frequently observed in children than in adults; only a comparatively few cases have been observed in children. At all ages it is distinctly rare.

In considering the etiological factors at work in the production of diverticulitis, attention must be drawn in the first place to the shape

of the diverticulum and its orifice of communication with the intestine. In by far the majority of cases the proximal end is as wide as or even wider than the rest of the tube. But sometimes a valvular formation is noticed at the proximal end, which consists of a reduplication of the mucosa, an attempt at obliteration apparently. This was noticed by Meckel. This narrowing of the proximal end may be so extreme that the diverticulum is attached to the intestine by a pedicle, through which the lumen is very narrow. The free escape of contents may thus be prevented. The body of the diverticulum may thus distend and form a cyst. Its communication with the intestine may even be obliterated entirely, it is said, and a cyst may thus form, the interior of which may be shut off from the intestine. Some abdominal and mesenteric cysts are accounted for in this way by some observers. This narrowing of the proximal end may be an incomplete developmental process, but also, it appears, it may be the result of inflammatory changes. Pathological changes have been studied by Rebentisch and Denecke which seem to show that the occlusion is of an inflammatory nature sometimes. In Rebentisch's case there were further points of constriction in the tube apart from the one at its intestinal attachment. Secondly, the diverticulum may lie free or be attached at its extremity. If the omphalo-mesenteric band be present and attached to the umbilicus, or having acquired a fresh adhesion, this may serve to bend down the diverticulum. Such a fixation might interfere with the peristaltic movements of the intestine, or kink the tube in some way as to interfere with the escape of its contents, or so alter its circulation as to predispose it to an acute infective inflammation as in the very similar condition of appendicitis.

In my first case a band was found distinctly fixing the diverticulum which might in some way have predisposed it to an infection. A mesentery, which has rarely been described on the diverticulum, might act similarly. A diverticulum previously inflamed and adherent is predisposed to a recurrence by fixation, as in my second case and also a case recorded by Galeazzi.

Thirdly, the diverticulum is subject to the same catarrhal conditions as the intestine to which it is attached. The mucous membrane is of a similar structure, containing glands, lymphoid tissue, and even a Peyer's patch. In acute catarrhal enteritis the process has been observed in the diverticulum. Fitz has noticed tuberculous ulceration in the diverticulum in association with similar ulceration in the intestine. Typhoid ulcers have been observed in the diverticulum also, and have even perforated here, as in the cases recorded by Boinet and Delanglade. .

Fourthly, foreign bodies have not infrequently been found in the diverticulum. Rarely have they been found as etiological factors in appendicitis; relatively they are more common in diverticulitis. The difference is accounted for by the larger opening of communication in the diverticulum, and its more exposed and accessible position for the entrance of a foreign body. Blanc and Körte have observed fish-bones; Cramer mentions apple-seeds; Escher describes a case where a diverticulum, containing round worms, ruptured and caused general peritonitis. Fæcal conditions are also mentioned. It seems, I think, doubtful whether the latter were the primary cause of the diverticulitis, or, as appears to me more probable, the secondary result of a catarrhal inflammation. An enterolith so formed might naturally add to the intensity of the inflammation, by causing interference with escape of secretion, as in cases of appendicitis.

Lastly, injury applied directly to the abdominal wall has been credited with producing diverticulitis. Undoubtedly some cases have followed immediately upon the receipt of an injury. It is difficult to see precisely how injury is responsible. It is tempting to believe that the diverticulum was swollen, and was torsioned by the injury; such, however, appears not to be the case.

The etiology of diverticulitis is in many respects similar to that of appendicitis. The anatomy of the two tubes is, however, different in many respects. There is rarely seen anything of the nature of a valve over the orifice of communication of the diverticulum; usually the exit for secretion is free. The diverticulum is more movable—not so subjected to alterations in position and shape by the movements of the intestine as is the appendix. It is not so bound down as the appendix. The conditions of the cæcum and small intestine are different as regards movements of intestinal contents.

In summing up the causes of this rare condition of diverticulitis, the following may be said to act as predisposing factors:

- (1) Sometimes foreign bodies, round worms, and possibly enteroliths.
- (2) Fixation of the diverticulum by congenital or acquired bands, or adhesions producing kinking of the tube, interference with the escape of secretion and the circulation, and thus encouraging an acute infective inflammation.
- (3) In some cases apparently coming on during or following an attack of acute enteritis.
- (4) Trauma appears occasionally responsible.
- (5) The diverticulum becomes acutely inflamed in such conditions as volvulus, strangulation in a hernial sac, and when it forms a band under or over which a loop of intestine may be snared.

One can recognise, as in the appendix, the following varieties of inflammation :

- (1) Simple catarrhal inflammation, with local peritonitis.
- (2) Localised suppuration, with or without perforation of the diverticulum.
- (3) Acute perforation, leading to general peritonitis.
- (4) Gangrene of the diverticulum.

The evidence of a simple inflammation and local plastic peritonitis is seen in my second case. Here there was distinct evidence of previous inflammation seen in the presence of old adhesions, with the definite history of a former attack of peritonitis. Galeazzi, quoted by Denecke, describes a case of a child who had had three attacks of acute peritonitis, each lasting about three days. A similar attack occurred, and Galeazzi, at the operation, found old adhesions fixing the diverticulum.

The most frequently described condition is an acute infection of the diverticulum, with surrounding local peritonitis. My first case is an example of this without any perforation of the diverticulum. Sometimes perforation occurs analogous to perforative appendicitis. In no case has a correct diagnosis been made before operation. As is to be expected, most cases are diagnosed as appendicitis. It is noteworthy that the tumefaction formed by diverticulitis is situated more towards the midline than is usual in cases of appendicitis. The iliac fossa is often described as being quite empty, and the tumour is usually around or just below the navel, or below and to the right of this. This seems a practical point worth bearing in mind, but I do not profess it to be in any way diagnostic, the appendicular abscess being found in such various positions.

Only rarely is general peritonitis recorded as a result of diverticulitis in the absence of volvulus, or in association with intestinal obstruction. The origin of the peritonitis could not be diagnosed before laparotomy.

Gangrene of the diverticulum (by this is inferred gangrene of a considerable portion of the tube, and not simply of a gangrenous inflammation at the site of perforation) may result from :

- (1) Strangulation, as in herniæ.
- (2) Volvulus.
- (3) Through pressure and tension in the various kinds of intestinal obstruction produced by the diverticulum.

(3) *Volvulus of the Diverticulum.*

Volvulus of the diverticulum is of very rare occurrence. Tregelles Fox exhibited at the Pathological Society a specimen of a Meckel's diverticulum which caused the death of a boy aged 5 years. The diverticulum was greatly dilated, and formed a free pyriform extremity: this had become lodged under the transverse colon, and the pedicle had become twisted, forming a band under which a coil of small intestine had become incarcerated. Owing to the torsion of the pedicle and the interference with the vascular supply, sloughing of the wall of the fundus had taken place, leading to perforation and a fatal general peritonitis. Until the illness, which had lasted four days, there were no symptoms except dyspepsia. Taylor records the case of a girl who had always been subject to occasional attacks of abdominal pain, which were relieved by purgation. Sudden acute abdominal pain developed, and signs of peritonitis were manifest forty-eight hours later. Laparotomy was performed. A tense, rounded mass was found filling the whole of the right side of the pelvis, resembling an enormously distended intestine. This was an almost gangrenous cystic tumour of Meckel's diverticulum, having an attachment fourteen inches from cæcum. The pedicle was twisted on itself three times, thus cutting off the blood-supply and causing gangrene. There were no adhesions around, but some local peritonitis. The pedicle was cut and the cyst removed, and the wound closed. The child made an uninterrupted recovery.

The cause of this torsion is difficult to understand. It supposes a cystic distension of the body of the diverticulum, attached by a distinct pedicle to the intestine. As factors in the production of it may be considered the growth of the swelling, necessitating change of position; any spontaneous movement on the part of the tumour; movements impressed on the tumour by surrounding viscera or the abdominal walls; or any sudden change in position of the tumour due to any movement on the part of the individual.

Traction by the torsioned diverticulum upon the intestine may produce intestinal obstruction. The intestine may be snared under the pedicle also.

(4) *Intussusception of the Diverticulum.*

This condition is very rare, but perhaps slightly more frequent than the previous one.

The following case has been under my care:

A child, aged 3 years, was suddenly seized with acute abdominal pain and vomiting. The pain was distinctly paroxysmal, and vomiting occurred practically with each paroxysm. Upon examination, about fourteen hours after the onset, the child looked ill and the paroxysms of pain were becoming more frequent. There was a doubtful tumour felt to the right of the navel. Under chloroform a distinct tumour was felt. Laparotomy was performed. An intussusception was drawn up into the wound and easily reduced. The distal end was in the cæcum. On gentle pressure on the intussusception it most easily was returned and a diverticulum was the last part to slip out. This was removed, and the intestine sutured in two layers. The absolute ease of reduction was very noteworthy. The child made an uninterrupted recovery. Cheyne collected sixteen cases of an invaginated diverticulum; in only four of these was the subject a child, differing thus from the ordinary intestinal invaginations. Cheyne notes that in a number of cases has the diverticulum only been found, without any intussusception of the intestine. He quotes Holbeck, who says that in twelve published cases there was an intussusception of the diverticulum alone in five, and in seven intussusception of the intestine as well. Cases in children have been recorded by Brunner, von Stubenranch, Robinson, and Weill and Fraenkel. In all these cases there was an invagination of the diverticulum and the intestine as well. Carwardine describes a case of a triple telescopic intussusception originating in a Meckel's diverticulum. This was in a child, aged 14 months, admitted to hospital for an intussusception of two days' duration. No tumour was felt upon abdominal examination. A rapid operation was performed, and the small gut everted. An intussusception of the lower ileum was found which had just entered the colon. This was reduced with some slight difficulty, and then another invagination was found within the first, and on reducing the latter an inverted Meckel's diverticulum finally appeared, dark and swollen, and was reduced. At the autopsy a thickened and dark Meckel's diverticulum was seen about fifteen inches from the ileo-cæcal valve.

In the case of Brunner an accessory pancreas seemed to be the cause of the invagination. Küttner thinks the diverticulum becomes filled with faecal matter, and in the peristaltic efforts to dislodge it invagination takes place. De Quervain thinks the invagination occurs in a passive manner, namely that the rapid flow of intestinal contents past the orifice of the diverticulum produces a negative pressure in the diverticulum and thus draws it into the intestine.

(5) *Hernia of the Diverticulum.*

Occasionally the diverticulum is found in a congenital umbilical hernia. It may be ligated in the cord as mentioned above. An intussusception may occur into it as in Morshead's case referred to above. Apart from these complications it presents nothing characteristic as a content of the sac. If found, it should be removed at the radical operation for the hernia.

It has also been found in an inguinal hernial sac, but not in the child in any other sac.

Banks showed a specimen at the Pathological Society in 1896 of a Meckel's diverticulum removed from the sac of an inguinal hernia. The small bowel was also present. Banks believed the specimen to be unique.

Annandale in 1898 described the case of a boy, aged 3 years, with an irreducible, gurgling, scrotal swelling. At operation a diverticulum 2 inches long was found in the hernial sac. The diverticulum may become strangulated.

Vance describes the case of a delicate male child who had a reducible inguinal hernia which became irreducible and strangulated. The usual operation for the condition was performed, strangulation having existed for six hours. The contents of the sac proved to be two coils of intestines projecting through the inguinal ring, with a Meckel's diverticulum wedged in between them, thus making reduction or taxis impossible. The diverticulum measured at least 7 cm. in length. Its lumen was as large as that of the gut. The usual steps for a radical cure were gone through, the result being satisfactory.

Mitchell records the case of a boy, aged 4 years, admitted with a strangulated left inguinal hernia. The hernia had been present for about a year. On five or six previous occasions there had been difficulty in reduction. Strangulation had persisted twenty-six hours, being accompanied by great pain and for sixteen hours frequent vomiting. In the sac was a loop of ileum and a Meckel's diverticulum, both being constricted at the external ring. The diverticulum was excised and a radical cure performed. Recovery.

The diverticulum fixed in a hernial sac by exerting traction upon the intestine may cause intestinal obstruction.

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CONGENITAL OCCLUSION OF THE ILEUM.*

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IN view of the discouraging results obtained in the treatment of congenital occlusion of the small intestine, one is compelled to regard as fortunate the rarity of its occurrence.

The particulars of the case about to be recorded may, notwithstanding its unfortunate termination, prove to be not without interest to the members of the Society.

The patient from whom the specimen now shown was obtained was a male infant. On May the 2nd, 1903, four and a half days

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after birth, he was admitted to Ward III of the Royal Hospital for Sick Children, with a history of there having been no movement of the bowels since birth. I saw the patient in the absence of Mr. Parry, to whom I am indebted for permission to publish the case. On examination the abdomen was found to be distended slightly and tympanitic. The anus was well formed, and the canal admitted the little finger for a distance of fully two inches. At this level the canal seemed to end in a *cul-de-sac*. No bulging above the supposed *cul-de-sac* could be felt by the finger. A gum-elastic catheter could not be passed further than two and a half inches in from the anus. Neither the catheter nor the examining finger showed, on withdrawal, any staining with faecal matter.

Believing that I had to do with a case of imperforate rectum, I explored the pre-sacral region, through a median incision in the perinaeum. No dilated gut was felt, but what seemed to be a firm cord was distinctly palpable. The abdomen was then opened in the left iliac region, and what was taken to be the distended sigmoid flexure presented itself. Before opening this, a finger was passed down into the pelvis, and with it could be felt, in front of the sacrum, the finger of the other hand in the lower wound; the cord-like structure above mentioned was also felt. The distended gut was then sutured to the parietal peritoneum and to the skin. The loop was pulled well down before passing the sutures. This was in view of the possibility of a secondary operation from below. The suture-line having been protected with strips of gauze sealed down with collodion, the bowel was opened by a longitudinal incision. A large quantity of meconium came away. The finger was introduced into the gut and passed downwards into a very large sac above the pelvis and having no communication with the rectum. By the following day there had been a free discharge from the bowel, and the child was taking food well. Three days after the operation undigested milk came away from the wound, and there was a suspicion of commencing jaundice. On the eighth day convulsive attacks were observed; they occurred at frequent intervals, were tonic rather than clonic, and were confined mainly to the left side. The head was retracted slightly. By the following day the convulsions had become more generalised, and it was evident that the child was going downhill from malnutrition; the fontanelle was sunken. On May the 15th, thirteen days after the operation, the child died.

A post-mortem examination was made by Dr. A. R. Ferguson and showed that the distended bowel, supposed to be sigmoid flexure, was really a portion of the ileum. The continuity of the alimentary

canal was completely interrupted at a point 3 ft. 7 in. (1.09 metre) from the pylorus, the bowel ending in a blind sac. The artificial anus was situated 4 in. (10 cm.) above the interruption. From the commencement of the jejunum downwards, the lumen of the bowel gradually increased till the blind end was reached. Connected with this sac by a layer of mesentery was the upper end of the lower segment of the bowel. This was of small size, being of about the dimensions of the tip of the adult vermiform appendage. The distal segment, from its commencement down to the caput cæcum, was filled with firm, pale greenish solid matter. This did not contain any bile-pigment, but from it pure cultures of *Bacillus coli communis* were obtained. The caput and the vermiform appendage were both very small; the latter lay in front of the right kidney. The whole



STEREOSCOPIC PHOTOGRAPH.

The picture shows the parts after hardening. The mesentery extends to termination of upper portion of gut. The terminal part of the lower portion is devoid of mesentery for a distance of 2 c.m.

of the colon was of small size—somewhat larger than the adult ureter, but with a much thicker wall than this structure. The rectum was short and of larger calibre than the rest of the large intestine. From the anus to the upper end of the distal segment measured 6 ft. 4 in. (1.9 metre). The abdominal viscera otherwise appeared normal.

Before trying to suggest a cause for the condition, it will be well to try and locate the *seat of interruption*. No note was made of its distance from the cæcum, and there is merely the statement that it was in the upper part of the ileum. We can locate approximately

the exact seat, by calculation. The length of the gut from pylorus to anus was 9 ft. 11 in. (3.025 m.), or about one third of the dimension in the adult (1). If we take the large intestine as measuring 2 ft. (61 c.m.), we are left with 7 ft. 11 in. (2.415 m.) as the length of the small intestine. This works out roughly: Duodenum 4 in. (10 cm.), jejunum 36 in. (91.5 cm.), and ileum 54 in. (1.35 m.), and enables us to place the site of interruption as somewhere in the *first few inches of the ileum*. The reason of my laying stress on the distance of the interruption from the cæcum will be obvious when we come to consider the cause of the occlusion.

Etiology.—So far as the etiology is concerned, cases such as the above fall into two groups. In the first group are cases depending on abnormal obliteration of the vitelline duct; in the second antenatal peritonitis is the causal factor.

(a) *Excessive obliteration of the vitelline duct.*—The vitelline duct is the remains of the originally wide communication between the midgut and the yolk-sac. As the walls of the abdomen come together at the umbilicus, the communication is constricted to a narrow duct; this ultimately becomes obliterated in its entire length. Cases and anatomical subjects have been observed in which obliteration has not taken place, or is incomplete. If it has not taken place, a fistulous tract leads from the bowel to the umbilicus; if only partial obliteration has occurred, and the portion of the duct proximal to the bowel remains, it is in the form of a finger-like pouch known as “Meckel’s diverticulum.” A study of the situation of this diverticulum has assisted in the determination of that part of the gut which is connected with the vitelline duct. The diverticulum occurs in the lower ileum, but its exact situation varies within wide limits—limits which vary with different observers. Thus Bland-Sutton (2) gives them as from 30 cm. to rarely exceeding 1 metre from the ileo-cæcal valve: Quain (3) gives the average position of the diverticulum as 43 inches above the valve, the limits being 11 to 120 inches; while Birmingham’s figures (4), again, are slightly different—average 32½ inches, and limits 6 to 144 inches above the ileo-cæcal valve. These last figures have been constructed from a study of the reports of L. J. Mitchell, Kelynack, and Rogie and Augier, to the Anatomical Society of Great Britain and Ireland, on this subject. Bland-Sutton (5) in his well-known work on tumours draws attention to the relationship between the vitelline duct and interruption of the bowel; and a fuller exposition of his views will be found in his “Erasmus Wilson Lecture” (6). According to him, while the obliteration of the duct is arrested normally at

the spot where it becomes continuous with the ileum, "occasionally the obliterating process exceeds normal limits and involves the wall of the gut, giving rise to a shallow furrow." Such a furrow corresponds to a diaphragm in the interior of the bowel, with a central perforation. "A much rarer condition is to find the ileum divided into two parts, each ending in a *cul-de-sac*."

As examples of cases produced in this way I may mention the specimen shown to the Glasgow Medico-Chirurgical Society in 1895 by Dr. Dalziel (7), and also the case published recently by Souter (8). In both of these cases occlusion had occurred in the lower part of the small intestine, quite close to the cæcum. In the case which is now reported, however, the occlusion is situated rather above the usual attachment of the vitelline duct.

In connection with the subject of abnormal obliteration of the vitelline duct Hudson's (9) classification will be found of use; it, as well as references to literature, is given in Mr. Maylard's 'Surgery of the Alimentary Canal' (10).

(b) *Ante-natal peritonitis*.—The adhesions and bands resulting from peritonitis during intra-uterine life may by compression bring about an interruption of the continuity of the bowel. As can be easily understood this cause may act anywhere in the course of the bowel, and it has been found in cases where the seat of occlusion was in the jejunum or the upper ileum, and therefore above the attachment of the vitelline duct. An example of this class of case is reported by Wm. Thomas (11). The occlusion was in the upper ileum and the intestines were so matted together by adhesions that the relations of the parts could not be made out until they had been removed from the abdomen. Multiple occlusion may occur from bands following peritonitis: such a condition is reported and figured by Dr. John Thomson (12). In Dr. Thomson's case the occlusion affected the jejunum.

I have referred above to the *rarity* of the condition and in this connection would notice a paper by Savariaud (13). This author, in discussing the treatment of congenital occlusion of any portion of the intestinal canal between the ampulla of Vater and the upper part of the rectum, expresses an unfavourable opinion as to the utility of operative intervention. Such forms of occlusion as depend on bands are extremely rare in the infant. Anastomosis is seldom practicable and the formation of an artificial anus is necessarily almost always so high up in the intestinal canal that the patient succumbs from failure of nutrition. His figures show the rarity of occlusion above the ano-rectal region, the proportion being 1 in

about 16,000 necropsies performed in the course of fifteen years in the foundling hospital of St. Petersburg.

When we come to consider the case which I have just reported, we find firstly, that the occlusion is situated above the usual attachment of the vitelline duct*; and secondly, that there are no evidences at all of peritonitic adhesions or bands. The solution of the question seems to me to be in the assumption of an *abnormally high attachment of the vitelline duct, which has undergone excessive obliteration.*

Treatment.—Nothing further in the way of operation than what was done was possible. An anastomosis would in all likelihood have proved useless, on account of the firmly contracted condition of the distal portion of the gut. If, after opening the abdomen, the obstruction be found to be situated in the small intestine, it would perhaps be well not to open the bowel at all, as the prospect of life is hopeless.

The following are the chief points of interest in the case: the occurrence of the occlusion *high up* in the ileum; enterostomy followed by malnutrition and “hydrencephaloid” state; slight jaundice.

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* Since the above was written I find that Kelly, in his recently published work on the appendix (p. 595), mentions that in rare instances Meckel’s diverticulum may be found as high as the jejunum or duodenum. He gives no specific references to cases.

A CASE OF APPENDICITIS IN A CHILD.

By JOHN ALLAN, M.B., Ch.B.,

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N. G.—, a little girl, aged 11 years, was admitted into hospital on June the 12th, 1905, suffering from what appeared to be an acute attack of appendicitis. The history was as follows:

Two days previously she was seized with violent abdominal pain. This pain at first was pretty general, but after a few hours it became more or less localised to the right iliac region, and a point midway between the umbilicus and the anterior superior iliac spine was especially tender to the touch. She was sick and vomited. Her medical man ordered hot fomentations to the abdomen and a strict milk diet. On seeing her next he found her condition much the same, so he advised her removal to hospital, and she was admitted as already indicated.

As far as could be ascertained from the patient, there was nothing in the family history of importance. Her home and social condition were far from satisfactory. She lived in a small overcrowded room, her meals were irregular, and the food was insufficient in quantity and bad in quality. She had had no serious illness before.

Her state on admission was as follows: She lay on her back, with the right knee slightly drawn up. Her face was pinched and anxious-looking and bore traces of much suffering. She was pale and anæmic-looking, and had slight malar flushes. Her development was fairly good, but her muscularity poor. On examining the alimentary system it was found that the tongue was very furred and dirty, and the breath had a foetid odour. She felt sick, but had vomited only once. Her bowels were very constipated. On *inspection* of the abdomen it was noted that it was held rigid, the breathing being entirely thoracic. The dorsal decubitus and flexion of the right knee have already been mentioned. The right iliac region was somewhat fuller than the rest of the abdomen. On *palpation*, she shrank away from the slightest touch; the whole abdomen was very resistant and board-like, but was most markedly so in the right iliac region. In that region a distinct localised swelling could be made out, very hard and indurated, and with no sense of fluctuation. Tenderness was pretty general, and was by far the greatest in the right iliac region over McBurney's point. *Percussion* showed a localised area of dulness on the right side and was painful.

There was no albumin in the urine. The pulse was rapid and weak, and the respirations were quickened. The temperature was 103.2° F. There were no rigors and there was no marked leucocytosis. There was nothing noteworthy in the other systems.

Treatment and progress.—She was put on diluted milk in small quantities at frequent intervals. A soap-and-water enema was ordered and hot fomentations were applied to the abdomen. Next day her condition was much the same. The enema acted fairly well. She was given 2 grains of calomel that night and 1 drachm of sulphate of sodium next morning and that acted well. Not much improvement was noticed for three days. The pain now gradually got less; in fact, it was only on palpation that it was elicited. The temperature was curious. It came down to almost normal towards morning, but rose to 100° or 101° F. towards evening. Benger's food and beef-tea were now added to the diet. After about ten days the acute stage may be said to have passed off. There remained this circumscribed area of thickening in the right iliac region and a point of tenderness just over the appendix. Her bowels required constant attention. The alvine discharges were rather pale in colour and very offensive in odour. The tongue still continued furred and dirty. She was given calomel occasionally with sodium sulphate on the following morning, and regularly every four hours at first, then thrice daily, \mathfrak{ss} . of a mixture of 1 ounce of magnesium sulphate in 8 oz. of peppermint-water. Powders containing sodium bicarbonate, gr. v, pulvis rhei, gr. ijss., and salol, gr. v, were also given thrice daily. Locally the fomentations were continued. She was now allowed milk food and fish. Convalescence was very slow. A month after her condition was as follows: There still remained the circumscribed area of hardness in the right iliac fossa, less than it was formerly, and only on very deep pressure could pain be elicited. She was now on practically ordinary diet. She was very thin, emaciated, and had night-sweats. The temperature still continued to rise to about 100° F. at night but was almost normal in the morning. She had no cough or spit and a careful and systematic examination of her chest on several occasions failed to reveal any signs of pulmonary phthisis.

Diagnosis.—The question was What was the nature of this swelling? Was it tubercular, or was it simply inflammatory thickening, or was it an abscess round the appendix? My opinion is that the case was one in which there had been a slow and insidious onset of a localised tubercular peritonitis and that the acute attack of appendicitis drew the patient's attention to it. If the thickening

had been simply inflammatory, the temperature would have fallen as soon as the acute attack passed off. Nor would one have found emaciation and sweating associated with a simple inflammatory process. Coming to the question whether it was appendicitis with abscess formation, we should have expected rigors, and at no time, during the course of the case did these occur. The absence of marked leucocytosis is also a point against that. It is true that the toxins if very virulent may prevent leucocytosis, but in this case, though severe, at no time did it appear as if the patient might be overwhelmed by the toxins. The temperature did not give one the impression of a pyæmic process going on. No doubt there was the irregular swing, but that irregularity was too regular, so to speak. The temperature in pyæmia is generally higher and the rise and falls do not occur with such regularity. The sweating was not of much help in diagnosis. In pyæmic conditions it is apt to occur irregularly and frequently; in this case it always took place at night. Lastly, if a pyæmic process had been going on for weeks as suggested by the temperature, one would have expected to find a large fluctuating tumour in the right iliac fossa. Taking last of all the question of its being tubercular in nature, what do we find in favour of that? The hard, brawny induration which had been noticed from the very first suggested that some chronic process had been going on. The temperature was very suggestive. If a medical man had been shown the temperature chart and then been asked to make a diagnosis from simply looking at the patient, I have not the slightest doubt that he would have suggested that there was early pulmonary phthisis, as in every feature of the patient's face was stamped the tubercular diathesis. As already mentioned, no evidence of pulmonary tubercle could be detected. The patient's emaciation pointed to more than simple inflammation.

Subsequent progress.—After being six weeks in bed, there only remained a very slight induration. The fomentations had been discontinued, and the part painted with iodine on several occasions and latterly Unguentum hydrargyri compositum applied. During her convalescence she was given half a teaspoonful of the syrup of the iodide of iron thrice daily, then Hommel's hæmatogen, and finally milk and cod-liver oil. About seven weeks after admission no trace of the swelling could be made out: but the temperature continued to rise one or two degrees at night, and therefore she was still kept in bed. The temperature continued to behave in this way, but a week later it was decided to allow her up, and to let her get into the open air. Curiously enough, the temperature remained normal and did not rise

again. When in bed her progress towards recovery had been slow but sure, but after she got up the change was very marked indeed. Her general health improved rapidly and she put on weight. She was discharged on September the 11th, 1905.

The Society for the Study of Disease in Children.

A MEETING of this Society was held on January the 19th, at No. 11, Chandos Street, W., Dr. PORTER PARKINSON being in the chair.

A Case of Cutaneous Pigmentation was shown by Mr. ARTHUR EDMUNDS. The child exhibited on the buttocks and back a curious bluish mottling similar to the pigmentation which occurs in a large number of Asiatic races of mixed descent. The pigmentation resembled that shown in a Japanese baby recently exhibited at the Society. Much discussion has been caused by this pigmentation, some holding that it is an evidence of a negroid ancestry, while others, especially the Japanese authors, hold that it is merely a racial characteristic. In the present case there was no history of any negroid ancestry. Mr. Edmunds remarked albinism is well known in man, with the pink eyes and extremely fair hair, and there does not seem any reason why one should not regard a case like the present as one of melanism. The distribution of the pigmentation is exactly what one would expect. The dorsal region is nearly always more deeply pigmented than the ventral, and this obtains in the present case.

A Case of Sclerema Neonatorum in a girl 8 weeks old was shown by Dr. GEORGE CARPENTER and Dr. PORTER PARKINSON. The infant was born in a state of asphyxia, but recovered with artificial respiration. It was well nourished and healthy-looking, weighed $20\frac{1}{4}$ lbs., and there was no cyanosis. The temperature was generally normal, except for a temporary rise to 103° F., the cause of which was not evident. There was a brawny induration of a pinkish-purple hue over the whole of the back and back of the neck, also over the buttocks and upper part of the thighs posteriorly; also two small patches over the occipital region of the scalp. These areas did not pit on pressure, but the circulation in them was sluggish. There was constantly a trace of albumin in the urine. The child gained $1\frac{1}{4}$ lb. during the last fortnight. The sclerema was stated not to have altered since it was first noticed at birth.

Microscopical Specimens from a Case of Sclerema Neonatorum taken from an eight months infant who died when ten days old were also shown. The family history was good, and there was no evidence of hereditary syphilis. The infant was very feeble and undersized, weighing only $4\frac{3}{4}$ lbs. There was brawny induration of a reddish-yellow colour in patches over both cheeks, eyelids, and buttocks, also over the spines of both scapulæ and clavicles. There was no pitting on pressure. The tongue was indu-

rated, and the infant could not suck. The temperature varied between 96° F. and 97° F. The child had attacks of asphyxia during which respiration stopped on several occasions, and eventually it died from this cause. The sections of the skin showed chiefly thinning of the epidermis, with considerable thickening of the cutis vera apparently due to increase of fibrous tissue, but this seemed insufficient to account for the sclerema, which the exhibitors suggested was due to a chemical rather than a structural change.

A Case of Lipomatosis was shown by Dr. LEONARD GUTHRIE. A very fat child, who had "no life in her," was always wanting to sleep, complained of pain somewhere in the head or face, and frequently became blue and cold. Height 2 ft. 8½ in.; weight (December the 7th) 32¼ lb.; neither weight nor height abnormal. Discrepancy between weight and appearance probably due to lightness of skeleton. Adiposity general, but also distributed in soft pads or rolls round neck, over lower cervical and upper dorsal vertebrae, in posterior folds of axillæ, and in ilio-inguinal region, but not above clavicles. Thyroid gland not felt; circulation poor, extremities cold; general congestion of face and lips, not amounting to cyanosis; heart's action rapid, irregular, and intermittent; first sound weak with occasional systolic bruit at apex; child passionate, sensitive, exacting attention, and mentally bright. It was suggested that the case was one of arrested development with obesity ("nanism avec obésité," Bourneville). Child under thyroid treatment, loss of weight in three weeks 1¾ lb.

A Case of Hemihypertrophy in a Child, aged 2½ years, the Left Side being larger than the Right, was shown by Dr. GEORGE CARPENTER and Mr. LOCKHART MUMMERY. The face and tongue on the affected side were appreciably larger, and the head was half an inch broader. The left side of the trunk was one inch larger than the right, the left arm half an inch longer, and the leg one inch longer and correspondently enlarged. The bones on the hypertrophied side were also larger. The faster growth on one side had been noticed for a year. He was well nourished and in good health, but was brought for advice because he walked lame: this was due to inequality of the legs.

A Cyst in the Breast containing Milk in a boy, aged 18 months, was shown by Dr. GEORGE CARPENTER. It was a soft, freely movable, elastic swelling, the diameter of a two-shilling piece, and had been noticed since birth. Latterly it had decreased a little in size. The contents on exploratory puncture resembled milk, and were micro-chemically of that nature.

A Specimen of Congenital Hypertrophic Stenosis of the Pylorus, which had been removed from an infant, aged 4 weeks, was shown by Dr. GEORGE CARPENTER. The child was born healthy, but persistently vomited immediately after nursing ever since birth. A tumour the size of the terminal phalanx of the little finger was felt during life in the neighbourhood of the pylorus. An attempt was made to feed the infant by simple milk dilution, next by a mixture of whey and cream, and then by whey with a fat substitute for the cream, but unsuccessfully. The child vomited and lost weight in spite of the dietary and despite stomach washings, rectal injections of normal saline, and minute doses of opium. Albumin-water caused the least gastric disturbance. It weighed 5¾ lb. when first seen, and lost half a

pound during its week of medical treatment. Gastro-jejunostomy was performed by Mr. Ewen Stabb, but the infant could not withstand the shock of the operation, and died six hours afterwards. The stomach capacity was $1\frac{1}{4}$ oz., and the pylorus would admit a No. 2 catheter, but it would only permit the egress of fluid drop by drop under hydrostatic pressure. The pylorus was very hard and measured $\frac{3}{4}$ in. by $\frac{5}{8}$ in., and the stomach walls were thickened. There were no other abnormalities.

Notes of a Case of Fatal Dilatation of the Heart, in which after Death there was no Adhesion of the Pericardium and no Valvular Disease, occurring in a boy, aged 8 years, were read by Dr. GEORGE CARPENTER and Dr. THEODORE FISHER. Apparently the boy had suffered from symptoms indicating cardiac failure for about one year, but the only history of rheumatism was of an attack four months before admission. After death the heart was found to be not only dilated, but hypertrophied. It weighed $10\frac{1}{2}$ oz. Microscopically, there was considerable fatty degeneration of the cardiac muscle, but this probably was a comparatively recent pathological change. The case was one of those obscure enlargements of the heart due to poisoning of some kind, but not necessarily rheumatic.

A Case of Successful Removal of a Congenital Sacral Tumour was shown by Mr. ARTHUR EDMUNDS. The patient, a fairly well nourished female child, aged 18 months, had a sacral tumour, the size of an orange, which dated from birth and consisted of two distinct parts, one of which was distinctly solid, while the other was definitely cystic. The solid portion consisted of fat pervaded by coarse strands of fibrous tissue. In one place a small bone was found with cartilage-covered ends. Running through the centre of the tumour there was a branched tube containing the small fatty epithelial balls which are characteristic of dermoid tumours. Parts of the tube were lined with typical stratified epithelium, while others were lined with a columnar epithelium with tubular glands, the whole closely resembling the lining of the large intestine. Beneath the lining epithelium there were sparsely-scattered glands. No definite nervous tissues could be made out. The cyst contained semi-purulent material, and at the junction of the two portions there were a number of small cysts.

Congenital Absence of the Skin affecting the hands, legs, and feet of an infant was shown by Dr. J. G. EMANUEL (Birmingham). In addition, over the temples, the bridge of the nose, and the middle of the lumbar region, there were irregular-shaped areas, in which a similar congenital deficiency in the formation of the epidermis existed. The parts affected were smooth, free from hair, sharply defined from the neighbouring healthy skin, and transparent, so that the delicate underlying blood-vessels were clearly visible. The infant was born dead at full term. There was no history of syphilis and no signs of any skin-eruption, and no other congenital malformations present. Microscopic examination of sections showed that the defect consisted of a complete arrest of development of all layers of the epidermis, including its associated glands (sebaceous and sudoriparous) and hairs. The cutis vera was unaffected, except, of course, in so far as it lacked hair-follicles, sweat, and sebaceous glands.

Photographs of a Case of Erythema Multiforme in a boy, aged

8 years, were shown by Dr. PERCY LEWIS (Folkestone). He considered it produced by a toxæmic condition induced by injudicious feeding.

The following gentlemen also took part in the discussion of the cases : Dr. G. A. Sutherland, Mr. George Pernet, Dr. Parkes Weber, Mr. Milner Burgess (Harlesden), Mr. Bishop Harman, Dr. Gray, Mr. Thompson Walker, and Dr. Colecott-Fox.

Editorial.

SURGERY OF THE CHILD'S STOMACH.

THE stomach of adults may be regarded at the present time as becoming daily more and more an organ of great interest to the surgeon. The child's stomach can hardly be said to have gained this pitch of intense surgical interest ; in fact, it is quite rare for the surgeon to have to treat any of the gastric affections of infancy and childhood.

In a paper in the 'Lancet' (December the 24th, 1904), on congenital intestinal atresia, in which duodenal atresia is considered, no reference could be found to any operation performed for the relief of this condition. In the 'Centralblatt f. Chirurgie,' 1905 (No. 45, p. 1229) is a reference to a case of Mohrmann's. A diagnosis of supra-papillary duodenal atresia was made in this case for the following reasons : frequent vomiting, marked dilatation of the stomach, and the passage of meconium containing bile. On the fourth day of life a gastro-enterostomy was performed. This, unfortunately, was without success. We believe this case to be unique.

For the condition known as congenital hypertrophic stenosis of the pylorus surgical measures have somewhat frequently been performed with a fair amount of success. Numerous cases of this disease have been recorded. Many yield to medicinal measures, but some eventually require surgical intervention. In the 'Practitioner' of 1904 is given a table of all the cases treated by surgery up to that date. Since that time several isolated cases have been recorded. Various operations have been performed. When surgery is required for this condition, the operation of gastro-enterostomy, although it takes

longer to perform and hence is accompanied by more shock in these feeble infants, nevertheless appears to be the most promising.

Ulcer of the stomach appears to be excessively rare in children. The tuberculous ulcer is known, but apparently is always secondary, either to tuberculous peritonitis or pulmonary tuberculosis. The tuberculous ulcer is hardly a surgical consideration, yet it may be. It has been known to perforate, with limiting adhesions.

The simple round ulcer of the stomach in children has been treated surgically from two aspects—perforation and scar contraction.

In the 'Lancet' of 1904 Watson Cheyne records the case of a boy, aged 13 years, who complained of stomach-ache. Previous to this he had been quite well. The following day he appeared better, except for some little abdominal pain. About one hour after dinner he became severely ill, and rapidly showed signs of peritonitis. It was thought most probable at this age that the appendix was at fault. The abdomen was opened upon this diagnosis. No obvious cause being found in the intestines, a second incision was made over the stomach, and after a prolonged search a round perforation was found, about one inch from the cardiac end, which would have admitted a slate pencil. Perfect recovery ensued. Cheyne draws attention to the occurrence of a perforation occurring in a boy aged 13 years. He could find no record of a perforation of the stomach in a male at that age. Gastric ulcers have, he says, been found in very young children, but apparently of a tuberculous nature.

Cutler ('Boston Medical and Surgical Journal,' 1904) collected twenty-four cases of gastric ulcer in children, confirmed by autopsy. A detailed account is given of the age incidence, symptoms, and treatment. In no fewer than eight of these perforation occurred. None were submitted to surgery. Leith ('International Clinics,' vol. iv, 4th series) records the case of a girl, aged 10 years, who had an ulcer of the stomach adherent to the spleen; perforation through the diaphragm with a left empyema occurred. Cade ('Revue Mensuelle des Maladies de l'Enfance,' 1898, vol. xvi) records the case of an infant, aged 2 months, with a local abscess between the stomach, pancreas, and mesocolon, from perforation of a gastric ulcer. Stowell ('Archives Pediatrics,' 1905) narrates the case of a girl who

presented the picture of one dying from pneumonia. Physical examination revealed nothing wrong with the chest. The epigastrium was hard and tender to pressure, the abdomen was somewhat distended. She had complained of pain in the stomach and had vomited. An autopsy revealed two perforating ulcers on the posterior wall of the stomach, two inches from the pylorus on the lesser curvature. Stowell gives an account of gastric ulcer in children from a collection of thirty-five cases. Foote ('Archives Pediatrics,' 1905) quotes the case of a child, aged 5 years, suffering from peritonitis. It was thought to be appendicial in origin, but the autopsy showed a perforating ulcer of the stomach.

Foote also mentions the case of a girl, aged 12 years, who had suffered from vomiting and hæmatemesis. The abdomen was opened. The pylorus was adherent and narrowed. Retro-colic gastro-enterostomy was performed with success.

Arbuthnot Lane ('Medical Press and Circular,' 1905) performed an operation for dilatation of the stomach in a girl aged 6 years. There was considerable dilatation of the stomach, and on examining the latter, the pylorus, or rather the stomach in the vicinity of the pylorus, was stenosed by what appeared to be a contraction of an ulcerated surface occupying the upper two thirds of the circumference. The jejunum was cut through at a suitable distance from its origin, the distal end being connected with the stomach. The proximal end was introduced into the distal portion at a convenient interval below the gastro-jejunostomy. The cause of the stricture was uncertain. The after-progress was satisfactory.

These are some of the reports of cases we have found in current literature of the surgery of the child's stomach. It would be very interesting to know if the child's stomach is so very exempt from those affections which appear to be so common in the adult. Any further reports of cases which would increase our knowledge upon this point would be most welcome.

Abstracts from Current Literature.

Medicine.

Acute encephalitis and poliomyelitis in children (cerebral and spinal infantile paralysis) ('*The Clinical Journal*,' No. 662, July 5, 1905).—**Leonard Guthrie**.—It is now recognised that acute encephalitis and anterior poliomyelitis are one and the same disease. In the one case the affection is of the brain, in the other it is of the spinal cord. So we may speak of cerebral and spinal infantile paralyses. The diseases may occur together in epidemics, in the course of which some individuals, perhaps of the same family, may suffer from symptoms pointing to a cerebral lesion, whilst in others the symptoms are those of an affection of the anterior cornua of the spinal cord. Post-mortem evidence in fatal cases is, however, scanty, but of late years sufficient has been obtained to establish the pathological identity of the two affections. In infantile spinal paralysis the morbid anatomy shows acute congestion, thrombosis of the small vessels, cell exudation, small hæmorrhages into the grey matter of the anterior horns supplied by the anterior spinal arteries. This leads to softening and necrosis of the areas involved, owing to the cutting off of the blood supply. In time the necrotic products become absorbed, contraction and cicatrization occur, with atrophy or destruction of the ganglion cells. Dr. F. E. Batten has discovered precisely similar initial changes in the subcortical area of the brain in one case of fatal and acute hemiplegia in a child; and in another, in which paralysis of the seventh nerve with death from respiratory failure occurred, he found in the medulla congestion, perivascular exudation, with destruction of the facial nucleus. Thus we may consider that cerebral and spinal infantile paralysis are pathologically identical. There seems little doubt that, as Dr. Batten contends, the primary condition is one of thrombosis of small blood-vessels, but as yet it is undecided whether such changes are due to a definite specific infection producing acute inflammation, or whether the thrombosis is dependent upon altered blood conditions arising from different causes. In favour of an acute specific infection may be urged the existence in epidemics of both forms and their prevalence in certain months, notably in late summer and early autumn. This suggests bacterial invasion, but at present no specific bacteria have been identified. On the other hand, the cerebral form, at all events, of infantile paralysis has so frequently occurred in the course of, or in the wake of, acute specific diseases, such as morbilli, pertussis, diphtheria, scarlatina, and influenza, that it is difficult to regard the fact as a mere coincidence. And yet it is certain that both forms may occur independently of any coincident or preceding illness. On the whole it seems most probable that some specific organism is present, and that its action is favoured by the existence or by the lowering effects of one or other of the specific fevers. The onset of both forms is usually marked by grave constitutional disturbance. In poliomyelitis, except in very mild cases, there is, usually, a sudden invasion, with headache, pains in the back or limbs, vomiting, pyrexia, and sometimes convulsions. In a few hours or days one or more limbs are found flaccid and motionless. The limbs are often exquisitely tender on handling. In time pain, tenderness, and fever subside, and entire limbs, or certain groups of muscles in them, are found to be paralysed and flaccid. The muscles waste,

the tendon reflexes disappear, and the electrical responses show the reactions of degeneration, whilst the temperature and circulation of the affected limbs are lowered. The paralysis is always at first more extensive than can be accounted for by the actual extent of the destructive lesion, and it is only after lapse of time that the amount of damage caused can be ascertained. In acute encephalitis the initial symptoms are, as might be expected, more severe and lasting than in the spinal form. The onset is usually sudden; pyrexia, headache, vomiting, delirium, unconsciousness, and convulsions are common. A condition of stupor or semiconsciousness may last for days or weeks, with affections of special senses, such as sight, hearing, speech, loss of sphincter control, and more or less widespread paralysis or paresis and sensory disturbance. As in the spinal form, the initial symptoms are usually more widespread than the lesion would appear capable of producing, so the prognosis must always be guarded. Sooner or later there are local signs which indicate the true or chief extent of the mischief, and these will vary according to its situation. In many cases the condition would seem not to advance beyond the stage of congestion and perhaps temporary thrombosis of small vessels, for otherwise recovery could not be so complete as in many cases it is. Two forms of acute encephalitis are described: polio-encephalitis superior, which may affect (1) The præfrontal convolution of the brain, in which case profound and lasting mental changes may result; (2) the motor areas, either of the cortex or descending motor-tract, giving rise to hemiplegia or diplegia; (3) the cerebellum or its peduncles, in which case disturbance of equilibrium and ataxy are the consequences; (4) the occipital lobes, producing (probably) blindness due to the involvement of the double half-vision centres. Polio-encephalitis inferior is so called when the nuclei beneath the corpora quadrigemina are attacked, and the result is strabismus or various kinds of ophthalmoplegia, or when the bulbar nuclei are involved (acute bulbar palsy), in which case any or all of the bulbar nerves may be paralysed. Sometimes the cranial nerves rather than their nuclei seem to suffer, just as in the spinal form a condition of polyneuritis is sometimes more apparent than poliomyelitis. In some cases encephalitis seems to be subacute and gradual in effect rather than acute and rapidly productive of paralytic symptoms. Recognition of acute encephalitis as a by no means uncommon disease may prevent the error of mistaking it for tuberculous meningitis. This is a point of practical importance considering the great difference in the mortality which attends the two diseases. The conception of a primary thrombosis of smaller blood-vessels as the starting-point in both forms is also of importance. It affords a simple explanation of recovery from symptoms which seem to indicate a most extensive lesion. A mild and temporary condition of thrombosis is most incompatible with complete restoration of function. The degree of recovery attained will depend entirely on the amount of structural damage which the thrombosis occasions.

E. J. COWEN.

Epidemic megalerythema: a fifth eruptive fever ('*La Semaine Méd.*' May, 1905, p. 205).—**Cheinis** describes under this name a disease which, though little recognised in other countries, has been studied in Austria and Germany under the synonyms of acute infectious erythema, infectious morbilliform erythema, and erythema simplex marginatum. It occurs always in epidemic form and associated with epidemics of measles or rubeola, attacking children between four and twelve years. Incubation varies from six to fourteen days (Escherich), while that of rubeola is seventeen to

twenty-four days. Usually without prodroma, the eruption occurs in the midst of health, affecting only the skin, the mucous surfaces escaping, commencing on the face, especially that part of the cheeks where the skin is red, strictly limited in front by the naso-labial furrows, behind by a line in front of the ears; the chin remains pale. It consists of large spots of pale pink or violet red with a prominent oedematous centre, which, at the end of forty-eight hours, fade in the centre, become brownish-grey, and disappear without scar, desquamation, or pigmentation. A similar eruption occurs on the limbs, beginning near the trunk, so that the hands and feet are attacked last, occupying preferably the external surface, the size of the spots being sometimes as large as the palm. As retrogression takes place from the centre to the periphery, red rings with a centre of pale normal skin frequently result. The trunk is usually free, some discrete patches on the chest and back. No glandular enlargement, no catarrh. Total duration six to ten days; relapses sometimes occur. Differential diagnosis easily made—from rubeola, in which the trunk is early affected and glandular enlargement constant; from measles, which affects the mucous membranes; from scarlatina, by the character of the eruption, etc.; from pityriasis rosea, where there is pruritus and an embossed appearance of the spots. Dry eruptions have not the same distribution. Erythema multiforma is more difficult to distinguish; the localisation to the feet, hands, and nape of the neck is characteristic, and the parts affected remain cool, whereas the temperature of regions attacked by megalerythema is, on the contrary, raised.

VINCENT DICKINSON.

Cretinism, mongolism, achondroplasia and rickets (*Arch. of Pediat.*, 1905, p. 493).—**C. Herrmann** draws attention to the important differential points in the diagnosis of the above diseases. He states that some very eminent English authorities still consider mongolism as a form of sporadic cretinism. All these diseases have certain features in common. The "cretinoid" type of features—i.e. the depressed bridge of the nose open mouth, protruding tongue, etc.—serves as a connecting-link, and given a certain amount of family resemblance to cases of cretinism, mongolism, and achondroplasia. In mongols there is a peculiar slant of the eyes. In achondroplasia there is a marked disproportion between the head, trunk, and extremities. Although the facial appearances are somewhat similar, they are produced in different ways. In achondroplasia premature speno-occipital synostosis is the common cause; in cretinism, an insufficient growth of the base of the skull; in mongolism, a primary arrest of development followed by premature synostosis of the structures at the base of the skull. In achondroplasia and mongolism the characteristics are present at birth. Congenital cretinism may not be evident for some months. Dwarfism is present in all the conditions; it is most marked in cretins and achondroplasia. In mongolism and rickets all the parts are nearly uniformly affected, a more or less proportionate dwarfism. All these children begin to walk late and lack muscular tone. In mongols and cretins there is a lack of power of co-ordination. In all but achondroplasia there is anæmia. In spite of this, mongols often show peculiar pink patches on the cheeks. A persistent sub-normal temperature is common in cretins, and it reacts at once to thyroid treatment. The dose of the drug may be increased until it is sufficient to keep the temperature normal. Mongols sometimes have a subnormal temperature. The skin in cretins differs much from that of mongols, often showing myxœdematous infiltration. In cretinism and achondroplasia there

is often a redundancy of tissues about the legs. In all classes there is delay in closure of the fontanelles. The rachitic head is well known; it may exhibit craniotabes. The mongolian head is brachycephalic, and the sutures are long in closing. The cretinoid skull is not characteristic, except in the coarse, dry, scanty hair. The tongue is enlarged in cretins and occasionally in achondroplasia. In the cretin it becomes smaller on thyroid treatment. The high-arched palate is most marked in mongols. The thyroid gland is absent in cretins, or atrophied. In rachitis the chest shows characteristic changes; beading is common. A somewhat similar beading in achondroplasia is due to periosteal overgrowth at the end of the rib. Curvature of the spine, due to muscular weakness, is common in cretinism and rickets. Marked lordosis is seen in achondroplasia. Bending of long bones is common in rickets, and may occur in cretins from prolonged thyroid treatment. In all, but especially in mongols, the joints are extremely lax. The cretinoid hand is flat, spade-like, cold, and cyanotic, with stumpy fingers. A radiograph shows delay in the appearance of the centres of ossification. The fingers are long and have a somewhat beaded appearance in rickets, while in achondroplasia they are short and tend to diverge. In mongols a small second phalanx and a bend in the last phalanx are fairly common, but are also found in normal children. Rachitics sweat freely, cretins not at all. Constipation is often extreme in cretins. Mentality is most deficient in cretins, and least in achondroplasia and rickets. Mongolism exhibits all grades of idiocy, and unusual liveliness and restlessness. A few reach adult life. In rickets there is abnormal development of epiphyseal cartilage. In chondrodystrophy a periosteal overgrowth forms a cup-like mass around the cartilage. In rickets all the bones of the skull are affected, in chondrodystrophy only those at the base. Hermann recommends that in all autopsies on cases of chondrodystrophy careful attention should be paid to the pituitary gland. Possibly impaired growth depends on some defect in this gland.

EDMUND CAUTLEY.

A contribution to the technique of vaccination ('*Arch. f. Kinderheilk.*,' vol. XL).—**R. Flachs**.—To insure uninterrupted development and healing of the pustules, the author advises to discard the usual place on the arm on account of its great range of mobility, its proximity to the lymphatic glands of the axilla, and also on account of cosmetic reasons. He prefers an area on the chest bounded by a horizontal line through the sixth rib, the axillary line, and the lower costal margin. The advantages claimed are invisibility of the scars, comparatively quiescent state of the skin, and the greater ease with which protective coverings may be applied. After a description of the dressings used by him, Flachs claims absolute absence of irritation of the vaccinated area with an average duration of three weeks.

D. O'C. FINIGAN.

Ehrlich's diazo reaction in diseases of childhood ('*Wien. med. Wochens.*,' 1905, No. 23).—**Kephallinós** examined the notes of 6000 cases in the archives of the klinik for children's diseases at the University of Graz, to estimate the presence or absence of this reaction in the diseases of childhood. He arrives at the conclusion that the reaction is positive only in very few diseases of childhood, namely in measles, scarlet fever, typhoid, diphtheria, epidemic cerebro-spinal meningitis, tuberculosis, and pneumonia.

D. O'C. FINIGAN.

The diazo reaction in diseases of childhood ('*Inaugural Disserta-*

tion,' *Paris*, 1904).—**E. Fischer** found that in healthy children the reaction is negative, that in measles, typhoid, miliary tuberculosis, scarlatina, acute tonsillitis, and erythema nodosum the result is positive. On the other hand, diseases such as nephritis, appendicitis, influenza, and rheumatism give a negative result, and on these grounds he is convinced of its use in certain cases for diagnostic purposes. He instances the differential diagnosis between typhoid and influenza, scarlatina, and other exanthems. In the course of pneumonia he believes it to be of prognostic value, as a positive reaction is indicative of a severe affection.

D. O'C. FINIGAN.

Aspergillus niger growth on the tongue (*Intercol. Med. Journ. of Australasia*).—**A. W. Finch Noyes**.—A child, aged 13 months, was seen with gastro-intestinal disturbance of two months' duration. On the upper surface of the tongue during the past five months the mother has seen three black streaks, $\frac{1}{2}$ in. wide, running from the tip backwards; the whole surface is covered with a felted, whitish, furred covering. Scrapings taken from this were grown on plate-cultures of alkaline and acid agar and grew well on the latter medium, developing the septate branching mycelia with spore-bearing conidiophores of the *Aspergillus niger*. The exhibition of small doses of calomel resulted in cleaning the tongue and removing the fungus completely and rapidly.

J. PORTER PARKINSON.

The tendo achillis jerk in diphtheria (*'Brain,' spring, 1905*).—**J. R. Rolleston** summarises his conclusions from a study of the tendo-achillis jerk in one hundred cases of diphtheria, as follows: (1) This jerk is affected in a considerable proportion of all cases, though less frequently than the knee-jerks. (2) The frequency and extent to which they are affected bear, like albuminuria and paralysis, a direct relation to the faucial attack. (3) They are completely abolished in all cases of diphtheritic paraplegia. (4) Their absence may be the only evidence of loss of motor power in the lower limbs. (5) Like the knee-jerks, they are liable to be affected at an early stage of the disease, and to remain absent after disappearance of all paralysis, properly so-called. (6) They may be unequally affected on the two sides, and may be unusually brisk before they become sluggish and finally disappear. (7) It may reappear on one side before it does so on the other.

J. PORTER PARKINSON.

Case of myopathy with mental troubles (*'Gaz. degli Osped.,'* May 14, 1905, p. 603; *'Arch. Gén. de Méd.,'* August 15, 1905, p. 2101).—**Tramonti** describes the case of a boy of six who was healthy till of late. He showed muscular atrophy with no fibrillary tremors or reaction of degeneration, hypertrophy of the calves and buttocks, attitude and gait of pseudo-hypertrophic muscular paralysis. There was no family history of this disease. Mentally, the child showed grave signs of intellectual deterioration, and, in fact, had become almost an idiot. The physical and psychic troubles had progressed side by side.

A. ERNEST JONES.

Late onset of tabes due to inherited syphilis (*'Riforma Medica,'* January 28, 1905, an. XXI, No. 4, p. 93; *'Arch. Gén. de Méd.,'* August 15, 1905, p. 2102).—**Mario Bertolotti** describes two cases of this disease, one beginning at the age of twenty, the other at forty. A brother of the latter had died of general paralysis. His conclusion is that it is not always easy to distinguish between tabes due to acquired syphilis and that due to in-

herited syphilis. The possibility of the late onset of the latter should be borne in mind, as without doubt many cases of tabes are wrongly attributed to acquired syphilis.

A. ERNEST JONES.

Disseminated sclerosis in a girl of thirteen (*'Société de Neurologie,'* June 8, 1905; *'Archives de Neurologie,'* 1905, No. 115, p. 55).—**Raymond and Baudouin** showed such a case. The symptoms were difficulty in writing and walking. On examination was found a slight intention tremor, nystagmus, diplopia, pallor of the optic disc, increased reflexes, and Babinski's sign. The diagnosis was discussed, and the rarity of such cases pointed out; there are only about twenty cases recorded in the literature.

A. ERNEST JONES.

Cervical tabes in a child of fifteen (*'Société de Neurologie,'* June 8, 1905; *'Archives de Neurologie,'* 1905, No. 115, p. 54).—**Déjérine, Moréro, and Leenhardt** showed a case in which sensory phenomena in the upper extremity were the most important feature. Muscular strength was preserved. Sensation to touch and pain was abolished in the fingers and diminished in the arm and hand along a root distribution. There was loss of the stereognostic sense, of bone sensibility, and of the reflexes of the forearm; there was slight lymphocytosis, but no Argyll-Robertson pupil. The history yielded no evidence of syphilis. Pierre Marie and Babinski, who were present, did not accept the diagnosis of tabes.

A. ERNEST JONES.

On the bilirubin value of the blood-serum in new-born infants with jaundice (*'Société de Biologie,'* July 8, 1905; *'Gazette des Hôpitaux,'* 1905, p. 946).—**A. Gilbert and P. Lereboullet** have studied by means of the cholimeter the percentage of bilirubin in this so common condition. They find that this percentage is increased in every case, and may remain for a longer while than the staining of the skin; it reaches a higher percentage than is found in adult jaundice. These researches put beyond doubt the biliary nature of this staining of infants.

A. ERNEST JONES.

Recovery from pneumococcic septicæmia (*'Société de Biologie,'* July 8, 1905; *'Gazette des Hôpitaux,'* 1905, p. 958).—**Lafforque** of Tunis reports an interesting case. It is usually assumed that the detection of pneumococci in the blood indicates a fatal issue. The case here recorded was one of lobar pneumonia, and a pure culture of pneumococci was obtained from the blood. The patient was desperately ill, but rapidly recovered after a crisis.

A. ERNEST JONES.

Diagnosis of frank pneumonia in children (*'Gazette des Hôpitaux,'* July 20, 1905, p. 963).—**G. Variot** has given a clinical lecture on this subject recently, and an account appears here. He lays stress on the great variations shown by the temperature chart, apart from complications or extension of the process. He refers to the great difficulty with which central pneumonia is diagnosed in many cases in children, as all of the general signs which usually make this diagnosis easy in adults, such as chill, pain in the side, dyspnœa, high fever, etc., are frequently absent in children. The absence of expectoration in children is an added difficulty, and in the last 300 cases, seen in five years, Variot has only three times seen—and these were in children aged 12 years—the tinged sputum so common in adult pneumonias. For this reason examination of the expectoration in children is usually neglected. It has been proposed to empty the stomach to obtain

material for examination, but Variot mentions a very simple device. Depressing the tongue and at the same time irritating the fauces, an attack of coughing is precipitated; a tampon of wool held in a forceps rescues this from the depths of the pharynx just before the act of swallowing takes place. The resemblance of the gastric type of pneumonia to typhoid fever is pointed out. As regards the physical signs, the extent to which percussion changes precede auscultation is insisted on. Weill's sign of observing thoracic immobility by means of little paper flags stuck below each clavicle has not proved of much service, and it is not often present, and sometimes occurs in bilateral disease. Radioscopy is of the greatest service in the diagnosis of pneumonia in children, especially when it is central.

A. ERNEST JONES.

Neuroses of infancy and problems of education (*'Académie de Médecine,' July 18, 1905: 'Gazette des Hôpitaux,' 1905, p. 969*).—**Maurice de Fleury** read a paper on this subject, based on thirty-seven observations on idle, inattentive children, who were psychasthenics, hystericals, etc. He obtained improvement or cure of the conditions by treatment of the neurosis, and uses this fact as a basis of some remarks as to the importance of the medical side of education, pointing out the parallel lines along which the teacher and doctor should work.

A. ERNEST JONES.

The venous souffle in the femorals of young boys; its frequency and significance (*'Académie de Médecine,' July 18, 1905; 'Gazette des Hôpitaux,' 1905, p. 969*).—**Molle**, of Oran, submits the following conclusions. About the age of puberty is to be observed in boys a condition analogous to chlorosis in girls; the most constant physical sign of the condition is the presence of a venous souffle heard almost exclusively in the femorals. Palpitation, wasting, and other symptoms are accompaniments.

A. ERNEST JONES.

The "contracted" muscles of infantile paralysis (*'Lancet,' August 26, 1905*).—**Fred. R. Fisher** contributes a paper on this subject in which he makes some very helpful statements. He questions the usually accepted theory that talipes is brought about by the stronger muscles overpowering their weaker opponents, and by gradually approximating their own points of attachment have become permanently shortened. He calls attention to the fact that the contraction of the muscles precedes the drawing together of their points of attachment, the latter being not the cause but the result of contraction with which the shortening of the fibres is coincident. He thinks it is also very doubtful if a muscle will acquire from overaction a condition of permanent contraction. In cases of poliomyelitis it is difficult to explain those in which the muscles, apparently devoid of contractile tissues, are still able to generate very evident distortion. There must be some remnant of contractile tissue left after the widespread destruction, so that we may conclude that complete loss of muscular function is seldom got. He suggested that some feeble stimulus may be issued from the central stations of the cord, erratic messages from a directing centre which has been thrown into a state of hopeless confusion. The development of paralytic talipes probably depends entirely upon neuropathic influence; the muscles imperfectly stimulated are sluggishly responsive, both in the act of relaxing and of contracting.

JAMES BURNET (Edinburgh).

Aciduria as the cause of deaths following the administration of chloroform and ether (*'Lancet,' August 26, 1905*).—**Leonard G. Guthrie** in a paper bearing this title arrives at the following conclusions, among others: (1) The symptoms suggest acid intoxication by the poisonous precursors of acetone. (2) The origin of such poisonous bodies is the disintegration of fat. (3) Acid intoxication arises from fatty metamorphosis in organs. (4) Fatty metamorphosis probably exists prior to the anæsthetisation. (5) The disintegration of fat into acid poisons may be due to the direct action of the anæsthetic, or the latter may favour the action of bacterial toxins present in the intestines in causing disintegration of fat. (6) If the fatty changes in the liver are physiological, then we can explain why anæsthetics are dangerous at one time and not at another, the element of danger being the superabundance of fat in the liver at the time of operation. (7) This excess of fat may be due to the use of large quantities of cod-liver oil and fattening diet together with want of exercise. In view of these considerations Guthrie suggests the following points with a view to preventing death from anæsthesia after operations: (1) We must inquire for so-called "bilious attacks" before operating, as these may be attacks of "acidosis." (2) We should delay operation where fattening treatment has been followed until the patient has been on fat-free diet for some days. During this period mild purgation is advisable, and the urine, if acid, should be rendered alkaline. (3) Starvation and fright may cause acetonuria. Therefore the patient should not fast too long before operation. We should, therefore, give a nutrient enema two hours prior to operating and another immediately after the operation. (4) If symptoms of acid intoxication come on after the operation, we should employ venesection, saline transfusion, and clysters of sodium bicarbonate solution.

JAMES BURNET (Edinburgh).

Congenital pyloric stenosis treated without operation (*'Lancet,' August 19, 1905*).—**W. J. Harper and J. R. Harper** record a case of this nature in which a male infant, aged 3 weeks, presented symptoms of this condition. He had been fed on a milk and water mixture, and at first seemed to thrive. Then he began to vomit. He got worse and was put on peptonised milk. He was thought to be suffering from gastritis, and nothing was made out on abdominal examination, though he was constipated. Benger's food was then tried in addition, but after three weeks' trial was given up as it was invariably vomited. Eventually peptonised milk was given up, and humanised milk was resorted to. This, however, likewise, was not tolerated. Valentine's meat juice, white of egg, peptonised milk, and hot water were all tried, but were immediately vomited. At the age of six weeks the infant's condition had become very grave. The pulse was 140, the temperature was subnormal, the skin dry and shrivelled, the extremities cold and bluish, and the body extremely wasted. The vomit was always devoid of bile, containing curdled milk and mucus; at times it was intensely acid and sour-smelling. At times the vomiting was forcible, never large in amount, save on rare occasions. The stomach was now found to be dilated, and distinct peristaltic waves, originating in the stomach, could be made out. At times peristaltic waves could be seen passing from the pyloric towards the cardiac end of the stomach. About this time the infant had in one day several tonic convulsions. Next day he had twenty-two such attacks. These continued for some days and he was given hot saline injections. He then improved somewhat and retained part of his food, which

now consisted of peptonised milk and water. He was still losing weight, however. A rounded swelling about the size of a small walnut could now be made out to the right of the umbilicus. A wet-nurse was obtained, and the infant fed by spoon on her milk, but this was not retained. He was now kept on normal saline injections, and everything else stopped. After a day or two the peptonised milk and water mixture was resumed. The abdomen was massaged with cod-liver oil twice daily, particular attention being paid to massage of the stomach wall towards the pylorus. He then began to improve, so that at the age of 3 months he had gained in weight. He was now fed on peptonised milk and Benger's food, with the addition of pulvis papain compositus. The constipation had still to be relieved by oil enemata. At the age of 9 months nothing abnormal could be made out on abdominal examination, and the weight was 18 lbs. He appeared to have an unusual amount of adipose tissue for a child of his age, and the upper part of his abdomen seemed unduly prominent. His health is now excellent, and the appetite good. He never has any vomiting, and has cut several teeth. Constipation, however, is still troublesome.

JAMES BURNET (Edinburgh).

Barlow's disease ('*La Semana Medica*,' September 21, 1905).—**Alfara and Belloc**.—The first case was in a child aged 10 months; on account of the death of its mother artificial feeding was begun on the fifteenth day with sterilised milk; later humanised milk was used, to which, after a time, flour was added. At the seventh month the child began to waste, to rest with legs flexed. It was distinctly anæmic; slept badly; the slightest touch or any movement near it made the child cry; the limbs were cedematous, especially the left arm and leg. An appropriate diet of fresh milk and fruit-juice caused complete recovery in eight days. The second case was a child, aged 1 year, fed on humanised milk; at the eighth month it was noticed to be sleeping badly and to refuse food. The œdema was most marked in the lower limbs; the urine contained blood and albumin. Fresh milk effected a cure in a few days. T. P. BEDDOES.

The anæmias of childhood ('*La Pediatria*,' 1905, May to October, p. 321, *et. seq.*).—**G. A. Petrone** contributes the results of his studies in this subject to the Italian Congress of Children's Diseases, held at Rome, April—May, 1905. Many illustrative cases are given:

(1) Anæmia is frequent in childhood. The explanation is to be found, not only in a greater frequency during that period of causes productive of an anæmic state, but also in a lesser resistance of the red corpuscles and of the hæmato-poietic organs of the child to pathogenic agents.

(2) In the present state of our knowledge a rational classification of infantile anæmic conditions founded as in the adult, on etiology or pathology, is not possible. The etiology of the anæmia, as of other morbid conditions, is either entirely obscure or is only partly known; while predisposing causes, whether acquired or congenital, escape our notice together with other more or less active agents which, associated with the principal cause, render the etiological and pathogenical aggregate complex, and cause varieties of type. The only rational classification, therefore, is that founded on the hæmocytology, and partly on the clinical symptoms.

(3) The essential symptom of every anæmia is oligochromæmia, which depends either on lowering of the colour index, or oligocythæmia, or on both combined. Two other symptoms independent of these—*i. e.* quantitative

and qualitative alteration of the white corpuscles—are not always present, and are not necessary for the diagnosis of anæmia. These two postulates divide anæmic conditions into two principal groups: (a) *pure forms*, in which there exist no other alterations in the red corpuscles except those referred to; (b) *complicated forms*, in which there are other independent changes. It will be easily seen that pure forms are much rarer than complicated forms, since the greater part of pathogenic agents do not generally limit their action to the red corpuscles and to the erythroblastic apparatus, and especially in childhood, owing to the special activity and consequent susceptibility of the hæmato-poietic organs at this age.

(4) *Pure anæmic conditions* are of three types: (a) *the chlorotic*, in which the oligochromæmia is caused by lowering of the colour index without diminution in the number of red corpuscles. It is caused by an insufficiency in the quantity of iron necessary for the formation of hæmoglobin. Such insufficiency may have a congenital origin, due to a scanty reserve of iron which the infantile organism derives from the maternal uterus (tubercle, syphilis, alcoholism, and bad hygienic conditions of mother), or it may be acquired and due to want of iron in the diet—*e.g.* prolonged lactation, at a time when the ferruginous reserve of the organism is exhausted, or due to a precocious consumption of such reserve, as happens sometimes in omphalorrhagia, or to an exaggeration of the hæmolysis which normally takes place in the first days after birth. Lastly, every form of anæmia in process of cure tends to assume at a certain period of convalescence the chlorotic type, because the quantity of hæmoglobin is the last to assume its physiological proportion; but these forms do not properly come under the category of this form of anæmia, because the chlorotic type does not exist *ab initio*. (b) *Simple anæmia*, in which the oligochromæmia is caused either by oligocythæmia alone, or to this conjoined with reduction of colour index. A characteristic fact of this form is that when amelioration takes place it is of *orthoplasic* type (normoblastic). In children, more often than in adults, there is polichromatophilia and disappearance of normoblasts. The causes are numerous. They act by increasing the expenditure of the blood or by diminishing its production (from scarcity of plastic material or from functional deficiency, acquired or congenital, of the osseous medulla). In childhood the most frequent are: affections of the digestive tract, deficient and unsuitable diet, bad hygiene, hereditary syphilis, tuberculosis, helminthiasis, pyogenic affections, especially multiple subcutaneous abscesses, septic infections, especially of the mouth, the exanthemata, etc. Moreover, vaccination in too young or debilitated infants may be the cause of a more or less profound anæmia. In older children rapid development, onanism, physical and intellectual *sourménagement*, three factors which, together or singly, and often associated with an acquired or congenital defect of the cardio-vascular system and hæmatopoietic organs, may be the cause of the *anæmia of adolescence*. In some cases the origin of the anæmia must be sought in a congenital debility of the sympathetic nervous system, and a case is reported of a child of eleven months in which the anæmia, not very profound, was accompanied by anasarca and chronic pulmonary œdema. (c) *Pernicious anæmia*, characterised by high degree of oligocythæmia, oligochromæmia in slightly less degree; colour index higher than normal, but in children it does not reach the figure observed in adults, because it is normally lower; presence of megalocytes, megaloblasts, and other nucleated cells, in number proportionate to the degree of oligocythæmia, anisocytosis, poikilocytosis, and marked polychromatophilia. Polynuclear neutrophile leucopenia is

neither a constant nor essential symptom. In many cases this is probably due to the fact that the osseous medulla is almost entirely occupied in the work of erythroblastic regeneration to the detriment of its leucopoietic function. The presence of a few myelocytes in the blood is often observed in children. The most important of all the above symptoms are the megalocytæmia and the presence of megaloblasts in the circulation, both dependent on *metaplastic* regeneration on the part of the osseous medulla (*megaloblastic degeneration*) in contra-distinction to simple anæmia, in which, as has been previously pointed out, such regeneration is of orthoplastic type. This distinction, however, is one of degree rather than of principle, since the megaloblastic transformation of the osseous medulla represents the last regenerative effort made by it to counteract the enormous consumption of red blood corpuscles which takes place. With regard to its etiology, it may be generally stated that all the causes which produce simple anæmia are capable of producing pernicious anæmia, either by an unusual intensity of their pathogenic action, or through a special predisposition of the subject, congenital or acquired. Among the causes met with may be mentioned: bothryocephalus, ankylostoma duodenale, repeated hæmorrhages, malignant tumours, malaria, hereditary or acquired syphilis, oral sepsis, carbonic oxide intoxication, and intestinal antointoxication. In one of the cases reported the anæmia commenced at the age of five months, after a generalised vaccinia associated with multiple subcutaneous abscesses. In many cases, however, the cause is entirely obscure (*cryptogenetic form*). This disease is met with much more rarely in children than in adults; this cannot be due to any special immunity of childhood, which should, *a priori*, be all the more predisposed to it owing to the less resistance of the red corpuscles, and also because the retrograde transformation of the erythroblastic apparatus towards the embryonic type should be the easier to verify the nearer it is to birth. On the other hand, it is probable that this rarity depends on the less frequent occurrence in childhood of some of the more usual causes of pernicious anæmia in the adult and especially those, hitherto unknown, which produce the cryptogenetic form, and perhaps also from the fact that in the short period of childhood an acquired predisposition for progressive maladies is less easy to form. It is not improbable that future investigation will show that the hæmatological syndrome of pernicious anæmia is less rare in childhood than is now admitted, and that in some cases it is obscured by the presence of other clinical features dependent on the reaction of the hæmatopoietic viscera to which the action of the pathogenic agent has extended owing to their special susceptibility in the early period of life.

(5) *Complicated anæmic conditions* must be subdivided according as its type is simple or pernicious, and also according to the various modes of reaction of the hæmatopoietic organs. There are thus various hæmatological types, several of which can already be well defined; for instance, we know that an anæmic condition from pyrogenic infection is accompanied by excess of polynuclear neutrophiles, that from helminthiasis by eosinophilia, that from malaria by a neutrophile leucopenia, with increase in the number of the large mononuclears. On the other hand, the hæmatological formula of anæmias of syphilitic, tubercular, and gastro-intestinal origin is very variable, which is attributable to varying periods of the disease, to diversity in the activity of the pathogenic agent, and in the receptivity of the soil, to different localisation of the morbid process, to possible complications, and to various causal associations. To this same group of complicated anæmias belong post-hæmorrhagic anæmia, in which there is present a

collective reaction of the hæmatopoietic organs, due to the abstraction of all the elements of the blood. But the most important forms are those which, often of unknown origin, are clinically distinguished when fully developed by a conspicuous splenic enlargement (*anæmia with splenomegaly*). These may be placed in the following groups: (a) *Mixed pseudo-leukæmia*, characterised by anæmia of varying intensity, for the most part simple, but sometimes pernicious in type; the presence in the circulation of nucleated red cells of various types and sizes (normo- and megaloblasts, with a few micro- and giganto-blasts); leucocytosis which may be very marked (in one case the number reached 84,000), in which all the white blood-cells take part except the mast-cells, but with a slight predominance of mononuclears (especially the large) over polynuclears; the presence of a small number of myelocytes, almost all neutrophile. (b) *Spleno-medullary pseudo-leukæmia*. This differs from the preceding only in the fact that the leucocytosis, which may reach a high degree (in one case the number was 53,000), consists chiefly of polynuclear neutrophiles and eosinophiles, to which is added a large number of myelocytes, for the most part neutrophiles, while the lymphocytes play a very inferior part in it, if any. The large mononuclears are increased as in the preceding group. In other terms, it is the entire medullary structure with its two principal systems—erythroblastic and leucoblastic—that is principally concerned in this form, while in the former group the medullary and lymphoid tissue are both concerned. In both the morbid process is localised by preference in the osseous medulla and spleen. (c) *Anæmia with splenomegaly and leucopenia*: Characterised by anæmia, usually simple, sometimes pernicious in type, with a number of nucleated red cells in proportion to the oligocythæmia; leucopenia either affecting equally the mono- and polynuclears or chiefly the polynuclears; relative or absolute increase of the large mononuclears; presence of a few myelocytes. The characteristic leucopenia of this form seems to depend on an insufficiency of the productive activity of the hæmatopoietic organs. In some cases perhaps another factor, already mentioned with reference to pernicious anæmia, contributes to the production of polynuclear leucopenia—namely that the osseous medulla consumes its energy in effecting regeneration of the red corpuscles to the detriment of the white granular cells. Related to this form, in which the reaction of the erythroblastic system is slight and proportional to the degree of oligocythæmia, there is another in which this reaction is more intense and out of proportion to the oligocythæmia, as in pseudo-leukæmia; it is, however, doubtful whether this second type constitutes a form distinct from the two preceding types of pseudo-leukæmia or a form in which the leucocytosis has been temporarily or permanently substituted by leucopenia, owing to exhaustion of the productive activity of the leuco- and lympho-poietic systems, only two cases having come under the notice of the author. (d) *Anæmia with splenomegaly and lymphocytosis*, in which, with simple anæmia and the passage into the circulation of a few nucleated red cells, there is a leucocytosis formed exclusively of mononuclear cells, especially of lymphocytes. This form is very rare, only one case being observed by the author, and that probably of syphilitic origin. (e) *Neutrophile polynucleosis*: One case of this was observed in which the undoubted cause of the polynucleosis and the probable cause of the splenomegaly was a purulent focus of long duration. In all these forms of anæmia with splenomegaly there is a constant increase in the large mononuclear cells. It is probably dependent either upon proliferation of the endothelial elements, especially of the spleen, or upon an incomplete

maturity of the lymphoid elements, or upon insufficiency of the respective system, as in the form with leucopenia, or upon an excessive proliferation of the same, as in the other forms.

(6) No case in childhood has been observed exactly similar to Banti's disease—*i. e.* with a first stage of splenomegaly and anæmia, a second intermediate, and a third characterised by the appearance of atrophic cirrhosis of the liver. But not infrequently cases are seen, sometimes of syphilitic or tubercular origin, in which splenomegaly with anæmia is associated with hepatic cirrhosis, usually hypertrophic, but sometimes atrophic.

(7) These hæmatological groups sometimes represent essential anæmic conditions, at other times are only symptomatic. This depends on the causative pathogenic agent. Some of them, such as chlorosis, pernicious anæmia, and anæmia with splenomegaly, usually present themselves under the former aspect.

VINCENT DICKINSON.

Pathology.

Congenital obliteration of bileducts ('*Arch. of Pediatrics*,' vol. XXII, 1905, p. 255).—**J. P. Crozer Griffith** gives various references to the literature of the subjects of this rare disease, one of the uncommon causes of icterus of the new-born, and reports a case in a boy, aged 10 days. The child was born at full time, apparently well, and meconium was passed during the first three days. Jaundice began on the third day, and was associated with frequent vomiting, anorexia, great constipation, frequent pulse and respiration, and wasting. Death occurred on the tenth day, preceded by marked general œdema. The autopsy showed complete obliterating stenosis of the common bile-duct, about one quarter of an inch above its opening, into the intestine. The gall-bladder was of normal size and the intra-hepatic bileducts were small. The liver showed cloudy swelling and fatty degeneration. There was no noteworthy cirrhosis. The condition has been attributed to a failure in development or an obliterative inflammation, starting in the duct, or as a primary cholangitis. Some writers regard the cirrhosis as a secondary effect of the obstruction; others state that it progresses *pari passu* with the cholangitis. The jaundice may be present at birth, usually develops in the first week, but in Köstlin's case did not appear until the sixth month. Acholic stools may be present from the beginning, or only appear as the congenital narrowing contracts into complete obliteration. Urine is intensely bile-stained. Death results from asthenia, convulsions, or coma. The affection is with difficulty diagnosed from severe icterus neonatorum, but in these, as in septic jaundice, bile may be found in the stools. In septic jaundice fever is almost invariably present. Hæmorrhagic tendencies and a family predisposition may be present in all forms of severe icterus.

EDMUND CAUTLEY.

Adeno-sarcoma of liver ('*Archives of Pediatrics*,' 1905, vol. XXII, p. 248).—**L. Emmett Holt** reports a case of primary adeno-sarcoma of the liver in a male infant, aged 9 months. Digestive disturbance, chiefly vomiting, was the only symptom noted before the tumour was found. The abdomen was unduly prominent on the right side and a large hard mass could be felt extending two inches to the left of the median line in the epigastrium. A mass, corresponding to the spleen, could be felt on the left side. There were slight distension of the superficial veins, slight œdema of the feet and legs, a leucocytosis of 17,000, 55 per cent. of hæmoglobin. There was neither jaundice nor absence of bile from the stools. Death resulted thirteen days

after an exploratory operation. The growth was made up of lobules of liver-cells, arranged in atypical columns. Many small hæmorrhages had taken place in and between the lobules. Karyokinetic figures were found in the epithelial cells. In softened hæmorrhagic portions there were, in addition to the epithelial cells of the liver, irregular masses of round cells with deeply staining, comparatively large nuclei, in a delicate connective-tissue stroma. This was evidently a small round-cell sarcoma. No exactly similar case was discovered in medical literature. Two cases of adenomata of the liver have been recorded by **Michselbaum** (1886) in a child, aged 22 months, and by **Pye Smith** (1880) in a boy, aged 12 years. Primary congenital sarcomata have been reported in six cases, all round-celled; myxo-sarcoma, spindle-celled sarcoma, round- and spindle-celled sarcoma in isolated cases; and medullary sarcoma in two. Some of these have been accompanied by metastases in the suprarenal capsules and the lungs. The combination of adenoma and sarcoma seems unusual. A distinct capsule surrounded the whole neoplasm and the sarcoma was only found in the central zone. This arrangement suggests that the adenoma was the primary growth. **Abt**, in the discussion on **Holt's** case, reported a case of adenoma of the liver found in a child, aged 21 months, who died from typhoid fever. The growth was not suspected during life. This condition has been regarded as a true adenoma or as nodular hyperplasm of the liver. These tumours may eventually become carcinomatous.

EDMUND CAUTLEY.

Pulmonary syphilis in a girl, aged 13 years (*'La Clinique Infant.'*, April, 1905).—**Zuber** communicated this case. Antecedent history negative. First sign of illness was a series of small swellings on the legs, which suppurated; cough and fever supervened. The child was tall and well-nourished, short-breathed, and had a tiresome, incessant cough, with expectoration of yellowish, sticky, round masses, streaked with blood. Anorexia marked; no diarrhoea or vomiting. Temperature 39·8° C. Urine copious, with a considerable quantity of albumin. Slight prominence of right side of thorax, the base of which was absolutely dull up to the scapular angle and nipple; partial dulness in upper part posteriorly, with bronchial breathing. Left side normal. Aspiration withdrew $\frac{1}{2}$ c.c. serosanguinolent liquid. Liver enlarged to two fingers' breadth below costal margin. No ascites. No signs of hereditary syphilis. No tubercle bacilli in sputum; no tubercular lesion in the ulcerated gummata of the legs. The diagnosis could thus only be made by process of exclusion. The dulness of the right base and the albuminuria increased, and on the sixteenth day after admission death took place, after a violent attack of dyspnoea. *Autopsy*: A thick, fibrous pleural covering over whole of right lung; the inferior lobe presented a greyish-yellow spongy mass, disintegrating under a stream of water, giving the idea of muslin soaked in pus, limited by a zone of white fibrous structure. Left lung œdematous; enlarged glands in mediastinum, without tubercle or caseous matter. Liver large, lardaceous, firm. Kidneys large, soft; the cortex lardaceous. Spleen large and lardaceous. In most of the cases published diagnosis was confirmed by success of specific treatment. In this case, in the absence of signs of hereditary syphilis, and of all personal antecedents, diagnosis was less easy, and based entirely on the character of the cutaneous lesions and the absence of tubercle bacilli. The relative frequency of heredity, or contamination at an early age, in the etiology of tertiary affections in early life, is not established, and this point of the diagnosis, therefore, must remain unsolved. **VINCENT DICKINSON**.

Congenital stricture of pylorus in a nursling (*'Lyon Méd.,'* May 7, 1905).—**Audry** and **Sarvonat** made this communication to the Soc. des Sciences Méd., March 15, 1905. An infant, aged 3 days, born at term, was admitted into hospital vomiting on February 1. The vomiting was almost constant, coming on from a half to one hour after taking the breast, but was never bile-stained. Micturition scanty; the stools few and dark brown. In the middle of February he had become more and more feeble; no modification of *régime* had any influence over the vomiting at this time. Examination showed that the stomach contracted strongly, but did not seem dilated. No pyloric tumour discovered; abdomen not much retracted. The possibility of surgical intervention was rejected owing to the feeble condition of the infant, whose weight decreased 400 grammes in fifteen days. A diagnosis of pyloric spasm was made, the vomiting continued, and death took place on March 5. At the autopsy the only lesion was contraction of pylorus; stomach not dilated, but slightly hypertrophied throughout, especially near pyloric extremity, which was represented by a ring perceptible exteriorly, 15 mm. long and 3 mm. thick, very hard and incompressible, and of normal colour; it admitted a small sound with difficulty, and, on filling the stomach with water, it issued only by drops into the duodenum. The pyloric stricture was found to be caused by hypertrophy of the muscular coat, the covering mucous membrane being thrown into deep heaped-up folds, and on the duodenal side presented the appearance of a miniature os uteri. Histologically, signs of sub-acute inflammation were evident. In the interstices of the gastric muscle, of the pyloric ring, and especially of the most exterior longitudinal fibres, there were groups of fusiform and round cells. The submucous and muscularis mucosæ were also much infiltrated with fusiform cells. Each blood-vessel was ensheathed with a double row of cells. The glands and the interglandular spaces were too rich in round cells. In a word, there was hypertrophy, but of a very evident inflammatory nature; this kind of stricture is rare.

VINCENT DICKINSON.

Tubercular meningitis with hemiplegia in a child (*Comité Méd. des Bouches-du-Rhône, June, 1905: 'Arch. Gén. de Méd.,'* September 12, 1905, p. 2365).—**A. Raybaud** gave an account of a boy, aged 3½ years, who, after pertussis broncho-pneumonia, suffered from two strokes, one of which left hemiplegia. They proved to be the immediate precursors of tubercular meningitis, which was revealed by autopsy. Hemiplegia in tubercular meningitis is rare, and especially in children. Of sixty cases collected by Hennart only four referred to children. Cases similar in their evolution to the present one have been recorded by Mills, Jaccoud and Comby.

A. ERNEST JONES.

Lesions of the cerebrum and cerebellum in an idiot born blind (*Congrès Français des Alienistes et Neurologistes, Rennes, August, 1905: 'Arch. de Neurol.,'* September, 1905, vol. xx, p. 241).—**Antoine Giraud** had at the last congress, at Pau, described the findings in the nervous system of an idiot who was born blind. The important features were sclerosis near the calcarine fissures and complete degeneration of the flocculus of the cerebellum. These changes found confirmation in some experiments on rabbits carried out by Dr ' Now Giraud gives an account of a quite similar case, the changes being absolutely identical with those found in the first case.

A. ERNEST JONES.

Pathological anatomy and paths of infection in cerebro-spinal meningitis ('*Berliner klin. Wochens.*,' 1905, No. 24).—**Westenhoeffer** publishes the following propositions as the result of his experiences in Upper Silesia: (1) The point of entry of the specific cause of cerebro-spinal meningitis is the post-nasal space, especially the pharyngeal tonsil. (2) The inflammation of the meninges is in the first instance invariably basilar and confined to the region of the hypophysis. It has a lymphogenous origin. (3) The inflammatory reaction of the meninges as an indication of disease of the cranium is analogous to the affection of the mucous membranes of the adventitious cavities of the post-nasal space. (4) The disease is never, or certainly only in very exceptional cases, a sequel to an affection of the ethmoidal cells. (5) It is a disease of childhood. (6) Those who suffer from it show distinct signs of a so-called lymphatic constitution. (7) Infection takes place by inhalation. (8) Attempts at prophylaxis must be based upon improvement of the hygiene of the house. (9) Although the meningo-coccus of Weichselbaum-Jaeger is found in the majority of cases, absolute proof that it is the sole cause of cerebro-spinal meningitis is still wanting. The fact that other cocci are often found either alone or mixed with the meningococcus does not exclude the possibility of all these bacteria playing only a secondary rôle, and that the specific cause is as yet unknown.

D. O'C. FINIGAN.

Therapeutics.

Mustard pack in capillary bronchitis (Editorial, '*Journ. Méd. de Paris*,' October 29, 1905).—The method introduced by **Heryfeld** consists in mixing half a pint of water and half a pint of spirits of wine with an ounce of oil of mustard. A piece of flannel is soaked in this mixture and wrapped round the body of the child, being kept on till the skin becomes red or the pulse and respiration improve; this should occur in not less than half an hour. The child is then wrapped in flannel wrung out of spirits of wine and water, in equal parts, for half an hour. After this the child is rubbed dry. The procedure may be repeated several times during the day.

T. P. BEDDOES.

Spinal analgesia in children with beta-eucaine ('*Med. Times*,' September 9, 1905).—**Karl Prelestner**.—This is a report of forty cases in children of all ages, the youngest child being four and a half months. The solution used was a 3 per cent. sterilised solution, and the dose injected varied from 1 to 2 c.c. according to the age of the child and duration of the operation. The injections were made in the usual way and sufficient analgesia for the operation to be commenced was generally produced in about ten minutes. The operations performed were various—radical cure of hernia, hydrocele, amputation, bone resection and division, and operations for club-foot. The analgesia was unsatisfactory or failed entirely in seven cases. Some nausea or vomiting occurred in half the cases. Severe toxic symptoms developed in one case, but recovery followed. Incontinence of urine lasting for several days occurred in five cases. The author's conclusion is that spinal analgesia in children may safely be resorted to in cases where inhalation narcosis is contra-indicated.

P. LOCKHART MUMMERY.

Otology, Laryngology and Rhinology.

Suppurative otitis media in infants ('*Med. Record*,' May 13, 1905).—**Alice G. Bryant**, in a paper on this subject, draws attention to some of the serious sequelæ which may result from this condition when undetected. She states that gastro-enteritis in an infant may result from pus having found its way into the pharynx from a suppurating middle ear by the Eustachian tube. Other sequelæ mentioned are septic pneumonia, empyema, synovitis or metastatic abscess. She draws particular attention to the importance of a careful examination of the ears in cases of convulsions, and points out that in acute conditions of the middle ear in infants there may be no pain or temperature to draw attention to the ear. In all acute affections of the middle ear, incision of the drum at the earliest possible moment is advocated and the dressing should be changed frequently; no douche should be used in the acute stage. In chronic cases of otitis media the dry treatment with boracic acid powder and dry wool dressing is recommended.

P. LOCKHART MUMMERY.

The influence of adenoid vegetations on the digestive disturbances and delayed growth of infants ('*La Clin. Infant.*,' July, 1905).—**G. Variot** states that adenoid vegetations frequently interfere with the nutrition of the young infant; in later childhood adenoids are now generally recognised, but in early infancy they are often neglected, because the marked interference with suckling is not understood and because they are wrongly thought to be exceptional at this age. They act on the nutrition in three ways: (1) By simple mechanical obstruction of the nose; during nursing the infant soon begins to suffocate and leaves off sucking to breathe by the mouth; he becomes rapidly fatigued and takes an altogether insufficient quantity of milk. (2) The vegetations often become infected and thus a new factor, septic inoculation of the intestine, is added, for children swallow the septic sputum from the pharynx. (3) In some cases adenoids, neither large enough to cause nasal obstruction nor much infected, can interfere with nutrition by causing a reflex spasmodic cough like whooping-cough followed by vomiting; the little patients vomit all they take and become marasmic. Occasionally an intractable reflex vomiting is produced without cough. To aid the diagnosis, the author gives an account of other lesions which may cause similar symptoms: syphilitic rhinitis, coryza, congenital occlusion of the choanæ, congenital narrowness of the nares and nasopharynx, malformations and collapse of the alæ nasi. Surgical intervention is well tolerated, and unaccompanied by much bleeding or febrile reaction. Five cases are recorded: two of interference with suckling, one of fetid diarrhœa, one of bronchitis, and one of reflex vomiting. All were markedly improved by removal of the adenoids.

HAROLD BARWELL.

Intubation experiences ('*Pediatrics*,' 1905, vol. xvii, p. 584).—**W. T. Watson** reports the results of one hundred cases of diphtheria. Of these twenty-two died, thirteen being almost hopeless when first seen. Intubation was done in all of them and anti-toxin was given. One fourth of the cases were under two years of age, and sixty per cent. of these died. The age ranged from six months to twelve years. Spasm of the larynx may prove a serious difficulty, but it usually relaxes in a few moments. The intubation may cause vomiting. Improper position and struggling on the part of the child cause difficulty. The tube may push down membrane and increase

dyspnœa. If it is withdrawn the membrane usually follows. Rapid return of stenosis when the tube is coughed out or removed may prove fatal unless the tube is at once re-inserted. It is due to falling together of swollen tissues above the glottis. Gradual return of stenosis is probably due to œdema below the glottis. Sometimes the tubes have to be retained for weeks or months, although the diphtheria has rarely persisted over one week. O'Dwyer ascribes this condition to traumatism from ill-fitting tubes or inept operation. Watson agrees with Rogers' view that it results from chronic inflammation and hypertrophy of the subglottic tissues. Children at the breast usually nurse well. Sometimes a child will swallow best when stood on its head. In only one case did food enter the tube. In two cases nasal feeding was necessary. Membrane, as it loosens, obstructs the tube, and is usually coughed up with the tube by older children, so the tube must not fit tightly. Sometimes the tube becomes gradually filled with granular deposit, probably decomposed membrane; obstruction of the tube proved fatal in one case within a few minutes. In one instance the tube was swallowed without subsequent trouble. The voice always returned to normal and no paralysis resulted. Intubation should be done early because of the liability to the stenosis becoming suddenly worse. The removal of mucus through the tube lessens the liability to broncho-pneumonia. If anti-toxin is used the tube can be removed in five days, or even seven days, if a hard rubber tube is used. The necessity for intubation decreases with the early and efficient use of anti-toxin.

EDMUND CAUTLEY.

Ophthalmology.

Eye affections in measles (*'Pediatrics,'* 1905, p. 286).—A. Bray draws attention to the ocular complications and sequelæ of measles and their prophylaxis. The signs of a toxic conjunctivitis are part of the symptomatology, and subside during the stage of desquamation. If they persist they may reduce the acuity of vision or cause partial or even total blindness. Corneal inflammation and ulceration are often overlooked, and leave corneal opacities, sometimes bilateral. A unilateral opacity may cause squint. Squint may also result from the action of the toxin on the nervous element of the intrinsic and extrinsic muscular system. Bray gives a summary of the different affections in the following order of frequency: (1) Phlyctenular conjunctivitis, (2) eczematous conjunctivitis, (3) marginal blepharitis, (4) superficial keratitis, (5) ulcer of cornea, with its occasional bad results, (6) blebno-rheal conjunctivitis, with corneal complications, (7) obstruction in lachrymal canal, (8) spasm of accommodation, (9) paresis of accommodation, (10) paresis of external muscles, (11) neuro-retinitis, (12) optic atrophy, (13) gangrene of the lids. For prophylaxis cleanliness of the child's hands, clothes, etc., must be insisted on, no direct light allowed to fall on the eyes, wash the eye three times daily with an antiseptic soothing lotion, such as: \mathcal{R} Acidi borici gr. x, sodii bborat. gr. x, aq. menth. pip. \mathcal{M} xxx, aq. camph. \mathfrak{z} ss., aquæ destill. ad. \mathfrak{z} j, using an eye-dropper or eye-cup, according to the age of the child. An ointment of yellow oxide of mercury, 2 gr. to 1 oz. of vaseline, should be applied at night to the lids to prevent itching, glueing of the lids, and blepharitis. If there is great congestion of the eyelids, one drop of 1 in 4000 suprarenal extract can be inserted three times daily. For marked œdema of the lids use warm compresses. Use cocaine for severe photophobia, and 1 per cent. solution of atropine if the

cornea is involved. The nose should be sprayed daily with boric acid lotion to prevent inflammation and obstruction of lachrymal sac. To keep the eyes as aseptic as possible two drops of a 5 per cent. solution of argyrol may be instilled daily. The general constitutional state should receive careful attention during convalescence, and the eyes must not be used for reading until the child has completely recovered from the toxæmic influence of the disease.

EDMUND CAUTLEY.

Ocular tuberculosis in children ('*Lancet*, November 4, 1905).—**J. Herbert Parsons** classifies the various types thus: *Conjunctiva*.—Tubercle is rare. It occurs in the following forms: (1) small miliary ulcers; (2) grey or yellow subconjunctival nodules; (3) "cockscorn" excrescences in the fornices; (4) polypoid tumours; (5) ulceration as an extension of lupus. *Cornea*.—Primary tubercle of this tissue is rare. *Iris*.—It may be met with here in three forms: (1) miliary tubercle; (2) confluent or agglomerate tubercle; (3) tuberculous iritis. The balance of evidence is in favour of the secondary origin of tuberculosis of the iris. *Ciliary body*.—This is usually a later extension from the iris or choroid. *Choroid*.—It may occur here in an acute or miliary and in a chronic form. Miliary tubercle frequently occurs but a short time before death. The number of tubercles found varies greatly. Both eyes are usually affected, and any part of the choroid may be attacked, but preference is shown for the neighbourhood of the disc. The nodules vary in size and generally project slightly inwards so as to raise the retina, but the inner surface is often quite flat, whilst the outer surface projects into the sclerotic. Chronic tubercle of the choroid may assume the form of a diffuse inflammation affecting large areas or the whole choroid and characterised by the extensive development of granulation tissue; or it may be indicated by the formation of a large tumour-like mass, the solitary or conglomerate tubercle. The clinical picture may resemble glioma, so that these cases form one class of pseudo-glioma. The chronic forms of choroidal tubercle progress slowly until the eye is destroyed. An early and important feature is the erosion of the inner lamellæ of the sclerotic which takes place. Later, the membrane of Bruch gives way and the retina is attacked. Finally the granulation tissue fills the vitreous chamber and perforates the globe, sometimes appearing as a tuberculous ulcer. The question of retrogression of tubercle of the choroid is of great importance. White atrophic patches, associated with much pigmentation, have recently been described as following choroidal tubercle. They have been found in children suffering from tuberculous adenitis, joint disease, etc., by **George Carpenter** and **Sydney Stephenson**. For a full account of the original work of these observers on the subject of choroidal and retinal tubercle see 'Reports of the Society for the Study of Disease in Children,' vol. i, pp. 169—179, with coloured plates; vol. ii, p. 168; vol. iii, pp. 52 and 83; vol. v, pp. 273—279, with coloured plates. Syphilis may be a cause in some of these cases, but this point requires further elucidation. *Retina*.—This is usually secondary to tuberculous affection of the uveal tract or optic nerve. A few doubtful cases have been recorded. *Optic nerve*.—Miliary tubercles in the sheaths and septa of the optic nerve are not infrequently found in cases of tuberculous meningitis. The nerve is also attacked from the choroid. Primary tubercle of the nerve is excessively rare. The cases on record have been conglomerate tubercle attacking the papilla and anterior part of the nerve.

JAMES BURNET (Edinburgh).

PREPARATIONS.

Preparations.

WE have received from Scott & Bowne, Ltd., 10 and 11, Stonecutter Street, London, E.C., a useful Pocket Diary and Emergency Note Book (1906) for the use of the general practitioner, and another of a similar nature adapted to the requirements of nurses. Both of these little books contain, in addition to the diary portion, a mass of useful information, well condensed and arranged. They are neatly bound in leatherette, with gilt edges, and measure only $5\frac{1}{8}$ in. by $2\frac{5}{8}$ in.

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Original Articles.

PERIODIC VOMITING WITH ACETONÆMIA IN
CHILDREN.*

By VINCENT DICKINSON, M.D., M.R.C.P.,

Physician to the Italian Hospital, London, etc.

THE clinical picture of the periodic vomiting of childhood with acetonuria is well known on the Continent, especially in France and Italy, but in this country it has not attracted much attention, and I have not been able to find any notice of it in the English medical press before 1905. In America also it has been described as early as 1893 under the various nomenclature of gastric neurosis (*Snow*, 'Arch. of Pediat.,' 1893), persistent vomiting (*Rotch*, 'Pediatrics,' 1901), periodic vomiting (*Rochford*, 'Arch. of Pediat.,' 1897 and 1904), cyclical vomiting (*Elsall*, 'Amer. Journ. of the Med. Sciences,' 1903, p. 629), vomiting with acetonæmia (*Marfan*). Personally I prefer the term "periodic" and shall use this designation throughout these remarks.

I will now attempt to reproduce the clinical picture. In the midst of perfect health, without apparent or appreciable cause or error in diet or derangement of intestinal action, the child, who is usually of a nervous or arthritic diathesis, is suddenly seized with

* Read before the Chelsea Clinical Society, January the 16th, 1906.

vomiting. This vomiting is produced by regurgitation without any premonitory nausea, just as in cases of tubercular meningitis, the vomit being usually watery, sometimes alimentary or bilious; but when this latter is noticed, which is not often, it indicates that the end of the attack is approaching. The vomited matter, at first abundant, diminishes by degrees, so that at the end of the attack the stomach is empty. Attacks of this kind of vomiting happen several times a day, and recur with variable frequency, sometimes every quarter of an hour, either spontaneously or excited by movement, such as putting the child to bed or attempts at feeding. The whole attack lasts usually from two to four or five days, but is sometimes prolonged for two or even three weeks, it being impossible to predict the moment when it will come to an end. Once at an end, it leaves no after-effect, and health is immediately re-established without convalescence. Some slight fatigue may be felt for twenty-four to thirty-six hours, but the child soon regains his cheerfulness, his colour returns, he hardly presents the appearance of one who has been seriously ill—the end is as abrupt as the onset. After a very variable interval of time, a few days to a few months, the attacks of vomiting are renewed with the same symptoms, and the illness may thus continue for years, disappearing completely about the time of puberty. Sometimes the attacks recur with striking regularity. *Comby* ('Arch. de Méd. des Enf.,' 1901) observed a case in which they were repeated regularly every month. The vomiting is always intractable as at first.

The symptoms which are associated with the vomiting are variable. Usually at the onset of the attack the child is prostrate, lies motionless in bed, neither crying nor groaning, its face pale and drawn, the eyes sunken, and the abdomen retracted. Very often there is constipation, appearing at the same time as the vomiting, rarely diarrhoea; the tongue is relatively clean or only slightly coated; the pulse is almost always accelerated, although some have noticed a rate of 50–60 per minute; there may be also irregularity. The temperature does not regularly exceed 100.4°F. , very rarely reaching 102.4°F. ; in exceptional cases it remains normal. Gastric pain is almost always absent, a point of diagnostic importance: when it does occur it is never at the commencement, but only at the end of the attack when the stomach is exhausted and there is nothing more to expel, and even then the pain appears only at the moment of vomiting and ceases in the interval. Thirst is intense, but the child cannot drink, for the least quantity of fluid is sufficient to provoke a fresh attack. A curious fact is that the

child, who absorbs very little liquid, can eject such a large quantity by vomiting; the organism becomes dehydrated at the expense of the vomiting, and this dehydration explains the thirst. The appetite is always retained, an important diagnostic point; for in the different gastro-intestinal or other acute affections of childhood vomiting always produces anorexia.

To recapitulate, the abrupt onset, the absence of previous gastro-intestinal disturbance, the absence of anorexia, the absence of gastric pain, the character of the vomiting, the slight elevation of temperature, which has so little relation to the gravity of the general condition which it is associated with, these are the most important signs to be considered in arriving at a clear conception of the affection.

During the attack the breath has a distinct smell of acetone, sometimes so marked as to be noticeable by anyone entering the sick-room. The urine is scanty, and on analysis shows a definite amount of acetone, and often also of indican. Analysis should be made daily from the commencement of the attack; for although the presence of acetone in the urine is a symptom which is never wanting, it does not always occur at the same period of the illness; sometimes it is found at the commencement, at other times not until the end. The fact that acetone is not found throughout the whole duration of the attack explains how certain authors, having analysed the urine only once, have denied the existence of this symptom; another reason is, that as this disease attacks specially children of the better classes, there is less facility for making constant examinations of the urine than there would be in a hospital.

Marfan and most other observers have, however, always noticed the presence of acetone in the urine ('Arch. de Méd. des Enf.,' 1901).

With regard to this constant presence of acetonæmia, it must be remembered that an abnormal quantity of acetone may be found in various affections of the digestive system in children. But it does not lose its importance in this affection merely because it is common to others, and *Marfan* remarks on this point that acetonæmia is the index of a disturbance of nutrition which may be produced under different circumstances. From this point of view it may be compared to glycosuria, and in the same manner it may constitute one of the elements which contribute towards defining a clinical entity. Although we have no precise knowledge of the part that acetone plays in the organism, we may admit that it is a manifestation of a disturbance of metabolism, and that it is this disturbance, the nature

of which is at present unknown, that gives rise to this form of vomiting. We must therefore content ourselves with noting the constant presence of acetone without giving any theory as to its origin; in any case it is certain that the acetone is not due to the abstinence from food, since it has been shown to be present at the onset of the attack.

The marked characteristics which these attacks present from a clinical point of view have led to this syndrome of symptoms being considered as a definite morbid entity. Many are agreed on this point, but divergencies of opinion commence when it comes to settling the origin of the vomiting. While *Comby* and others see in this vomiting a manifestation of the arthritic diathesis, others ascribe it to a hyperacidity of the gastric juice, and others to the acetonæmia, and others to a neurosis of toxic origin. It is worth while to examine these views more closely.

The theory of *Comby* ('Arch. de Méd. des Enf.,' 1902), that the attack is a manifestation of the arthritic diathesis, is supported by the following arguments: First, the parents of the patients being as a rule either obese, gouty, or eczematous. No doubt an hereditary arthritic taint is often present, as is shown by the fact that this complaint has a predilection for the richer classes, to whom arthritism is a sort of natural endowment, but it seems venturesome to attribute the condition entirely to this heredity; secondly, the analogy between these attacks of periodic vomiting and those of migraine which occurs in arthritics. This analogy is hardly justified, for although a certain periodicity is a phenomenon common to both, the duration is entirely different, so that whereas the attacks of migraine are essentially transient, lasting a few hours, the crises of periodic vomiting are prolonged usually four or five days; thirdly, the possibility of the attacks of vomiting becoming converted into attacks of migraine. This argument is founded on a few cases reported by *Rochford* ('Arch. of Pediat.,' 1897, p. 661); numbers of others have been published in which nothing of a similar character has been noticed.

Snow and *Whitney* ('Arch. of Pediat.,' 1893 and 1898) believe in gastric neurosis, and think that hyperacidity and the absorption of ptomains can precipitate the attack and increase its intensity.

Edsall ('Amer. Journ. of the Med. Sciences,' 1903, p. 629, and 'Arch. of Pediat.,' 1903) believes in a grave acid intoxication of a type frequently met with in diabetes mellitus and occasionally in several other affections, an intoxication whose origin cannot be precisely defined. He examined the blood of an infant affected with periodic vomiting and found it feebly acid, and attributes this loss of alkalinity of the

blood to admixture of acid with it. He compares this fact with what happens in diabetic coma, when the increase of acetone, the production of diacetic and oxybutyric acids shows an acid intoxication. According to this observer there are probably two kinds of acidity, one due principally to faulty metabolism, the other due primarily to digestive disorders and exaggerated by disturbances of metabolism. A fact that gives support to the theory is the success with which he has been able to prevent the development of the attacks by the administration of very large doses of diffusible alkalies. On this theory the acetone is merely the evidence of the existence of various acid toxic bodies, and not the direct cause of the vomiting, for acetone itself in order to be toxic would have to exist in the organism in very much larger quantities than have been found hitherto in the course of this affection.

Griffith ('Amer. Journ. of the Med. Sciences,' 1900, p. 553) bases his idea of a neurosis of toxic origin on the fact that in two of his cases generalised itching accompanied the attack and in another diffuse articular pain followed it. According to him a toxic substance is developed, either in the intestines or in the tissues, which is gradually poured into the circulation, where it accumulates. An attack happens as soon as the limit of tolerance of the organism is passed; the presence of acetone and indican is the proof of the profound metabolic disturbance and of the existence of toxins.

Of the numerous other hypotheses I can only mention a few. The true pathology and etiology of an affection can only be brought to light when the pathological anatomy has explained the clinical symptoms, and this naturally has not been done in the case of a disease like periodic vomiting, which has almost always a favourable issue. In America some autopsies have been published (*Griffith*, 'Amer. Journ. of the Med. Sciences,' 1900, cxx, p. 557), but they are too few to enable definite conclusions to be drawn, rarely lending colour to one theory or another.

Rotch ('Arch. of Pediat.,' 1897, p. 678) found an excess of albuminoids in the milk of a mother of a breast-fed infant who was attacked with periodic vomiting. By diminishing the quantity of nitrogenous food in the mother's diet the vomiting ceased.

Rockford and *Whitney* ('Arch. of Pediat.,' 1898) consider that an hereditary arthritic diathesis, besides producing uric acid, also produces poisonous leucomains closely related to the purin bodies, xanthin, paraxanthin, and heteroxanthin, which are diffusible, whereas uric acid is not; the gradual and periodic accumulation of their substances explain the paroxysmal nervous discharges which

cause the vomiting. The disease thus becomes a "lithæmic gastric neurosis."

Mery (Soc. de Péd. de Paris, 1899) sees in constipation the root of all this evil, but clinical facts do not bear out this theory, for although constipation is as a rule present, it only makes its appearance during the course of the attack, and is rather to be attributed to the empty condition of the intestines, the result of the repeated vomiting. Since the beginning of 1905, and since the publication by *Shaw* and *Tribe* and by *Langmead* of their cases in the 'British Medical Journal' (1905, pp. 347 and 350) two new theories have been brought forward in France by *Richardière* and by *Broca*. In the beginning of 1905 *Richardière* read a paper on the subject before the Société de Péd. of Paris ('La Pédiat. Pratique,' March, 1905, and BRIT. JOURN. CHILD. DIS., 1905, p. 229). He attributes these attacks to insufficient function of the liver, being struck with the frequency with which signs of hepatic derangement were present in these cases, which take the form sometimes of single bilious vomiting, sometimes of a subicteric tint of the skin, and at other times of an attack of urticaria. In a certain number of the cases the liver is enlarged, in others it is tender. In several cases the hepatic symptoms have pervaded the clinical picture, the liver has been large and tender, the jaundice marked, the stools white, and the urine bile-stained. *Richardière* is of opinion that the acetonnuria itself, which is the most constant symptom in periodic vomiting, must be considered an hepatic sign indicating that the liver no longer destroys or prevents the formation of acetone in the system, and, according to him, the hepatic theory is capable of explaining the majority, if not the whole, of the cases of periodic vomiting. He states that from this point of view the facts arrange themselves into three groups. In the first are attacks of liver disturbance ending in the crises of vomiting which have as their cause the bilious temperament, family disposition to cholæmia, and arthritism. In the second come attacks of periodic vomiting, in which the hepatic reactions are the result of intestinal disturbance, more particularly constipation. The third group comprises cases in which the functional disturbance of the liver is temporary, and determined by the onset of an infectious malady. But it is always the liver, directly or indirectly, which incites the crisis of vomiting. This theory would be seductive, by reason of its simplicity, if it were not based upon ideas as yet insufficiently proved, and it has been combated by *Marfan* ('La Clin. Infant.,' March, 1905, and BRIT. JOURN. CHILD. DIS., 1905, p. 277), who expresses the opinion that

attacks of periodic vomiting with acetonæmia represent a distinct affection, which runs in families; it is not uncommon to see a case in a child, and the next day or the day after a brother or sister would be attacked in the same way. He states, moreover, that the vomit is, as a rule, colourless, not bilious, and besides, the presence of bile does not necessarily imply participation of the liver; bile is found in the vomiting of renal colic; enlarged liver is often noticed, but is not constant; jaundice is a rare complication, and is probably secondary, as in pneumonia; hereditary cholæmia also is not observed in all the cases.

Hutinel has elaborated and modified the hepatic theory, and rendered it plausible, though not proven. This theory may be thus summed up, as quoted by *Giliberti* ('Rev. Mens. des Mal. de l'Enf.,' 1905, p. 397): In the normal state toxins are formed in the system, which, partly modified by the liver, are at length eliminated. Each time that, at the end of a faulty action of the digestive system in general, the liver becomes incapable of modifying these toxins, or, if they themselves are produced in abnormal quantity, they then penetrate into the circulation. The reaction which follows is necessarily variable and bears a very limited relation to the organism attacked, for everyone does not react in the same way to the same stimulus. Sometimes this reaction betrays itself by a rise of temperature, sometimes by urticaria, sometimes by nervous phenomena, sometimes by vomiting, etc. The different observers who have studied periodic vomiting, according as they have found themselves in the presence of one of the aforesaid reactions, have attributed the origin of the attack to one organ rather than another.

Hutinel has in effect observed the attacks of periodic vomiting supervene in the course of an ordinary enterocolitis, and has been able to diminish their frequency and prevent them by a rigorous hygienic regimen. He has seen them happen in the case of three little girls who were strongly under the influence of nervous disturbance, and in whom this origin was evident; it was enough for one of them to be attacked with vomiting for the other two to be seized in the same way, just like what happens in chorea or in whooping-cough wards, where, if one child has a paroxysm, its neighbours follow suit. *Hutinel* has moreover seen, although rarely, periodic vomiting happen *without apparent appreciable cause*; but he believes that the nervous system plays an important part in these cases because the children in question have an hereditary nervous taint. Periodic vomiting, then, according to him, would not be morbid entity, but a syndrome appearing in the course of various maladies,

from common enterocolitis to hysteria. It may be objected to this theory that the name of periodic vomiting is not applicable to all the cases mentioned by Hutinel, but only to those where the vomiting occurred, as he himself admits, *without apparent appreciable result*.

The other recent theory is that of *Broca* (Soc. de Pédiat. de Paris, 1905, February the 14th), who sees in these attacks a manifestation of an undiscovered chronic appendicitis. This observer has seen five cases of children whose illness was diagnosed by competent clinicians as periodic vomiting, and whose symptoms disappeared after surgical intervention. One of his cases was a striking one—a girl, aged 8 years, who since the age of ten months had had attacks of vomiting with acetonæmia every two or three months. A classical attack of appendicitis then ensued, and after it had subsided the appendix, which was large, hard, and the seat of folliculitis was removed, after which the attacks of vomiting did not recur. The same result happened in the other four cases.

Marfan and *Richardière*, however, relate cases where just the contrary occurred, where the vomiting continued after the total ablation of the appendix, and maintain that appendicular lesions may co-exist with attacks of periodic vomiting, but that the relation of cause and effect between them is far from being proved.

To sum up, then, the most recent facts about the disease as stated by Comby, who gives statistics of thirty-four cases ('*La Clin. Infant.*,' March, 1905, and *BRIT. JOURN. CHILD. DIS.*, 1905, p. 277), that in two only was the appendix distinctly implicated, twenty-four were girls and ten boys, and the greater number of cases occurred between two and ten years of age. A relation exists between these attacks and those of migraine; sometimes they ceased and were replaced by those of migraine. As antecedents were found—gout ten cases, migraine thirteen cases, neuralgia three cases, and sometimes eczema. Only twice was enlargement of the liver noticed; jaundice was rare. Constipation existed in thirty cases. In six cases the attacks were afebrile. These cases were met with in children of a neuro-arthritic diathesis and among the richer classes. The disease seems therefore to be the effect of some toxic substances, the product, as yet unknown, of a defective metabolism, which accumulates in the tissues, and which, acting on an unstable nervous system whose limit of tolerance is reached, suddenly produces an attack.

Diagnosis is not difficult if we bear in mind the symptoms, the sudden onset, the vomiting without nausea resembling the regurgitation of cerebral affections, the appetite preserved in spite of the alarming general condition, and the smell of acetone in the breath

and its presence in the urine. The two chief conditions likely to give rise to difficulty are repeated bilious vomiting and tubercular meningitis. The differential diagnosis from the former is thus given by Ely, quoted by *Giliberti* ('Rev. Mens. des Mal. de l'Enf.,' 1905, p. 418). In bilious vomiting there is history of errors in diet, action of the bowels is followed by relief, tongue coated, abdomen distended, abdominal colicky pains with increased peristalsis, clay-coloured stools, and febrile urine; whereas in periodic vomiting there is no sign of previous indigestion or history of unsuitable diet, action of the bowels gives no relief, the tongue may be clean, the abdomen either normal or retracted, there is no colicky pain and no increased peristalsis, the stools are normal, and the urine contains acetone.

With regard to tubercular meningitis, attention is called to the following points. In periodic vomiting the illness commences suddenly; in tubercular meningitis, on the other hand, there is usually a prodromal stage. The vomiting is obstinately persistent in the former case, but is present only at the beginning of tubercular meningitis, and ceases during its course. The intelligence is always preserved in periodic vomiting, while in tubercular meningitis a sub-comatose condition soon supervenes. In those rare cases of tubercular meningitis where the special nervous symptoms, such as nuchal rigidity and Kernig's sign, are absent, lumbar puncture might be resorted to to settle the diagnosis.

The *prognosis* is almost always favourable; a fatal issue has been usually due to complications, of which the most frequent is nephritis. *Langmead*, however, reports a fatal case ('Brit. Med. Journ.,' 1905, p. 350) which occurred in a child in her fifth attack. The liver was large and in a condition of advanced fatty degeneration. Kidneys also fatty. There was no nephritis. The left suprarenal body contained a small wedge-shaped hæmorrhagic focus. The mucous membrane of the posterior wall was mottled with dark red areas of hæmorrhage. Beyond this there was nothing abnormal to the naked eye. The gastric glands were degenerate, and here also small hæmorrhages were seen among the gland tubules. There was nothing that could not be attributed to inanition and fever and to the terminal convulsions. The large size of the liver and its extreme fatty degeneration were, however, very suggestive.

Treatment has the double object of cutting short the attack and of preventing its occurrence. The only specific treatment founded on a conception of the pathology of the affection is that of *Edsall*, who considers it due to an acid intoxication. He gives a diffusible

alkali such as bicarbonate of sodium in large doses, 15 grains every two hours, or 3 ounces in the twenty-four hours. This somewhat heroic treatment seems to have been successful in other hands. *Pierson*, for instance ('Arch. of Pediat.,' 1903) claims to have cut short the attack by giving it in what he considers to be a prodromal period. *Shaw* and *Tribe* gave $1\frac{1}{2}$ to 2 drachms daily in their case ('Brit. Med. Journ.,' 1905, p. 347), with rectal feeding and massage; the case recovered, although, as they state, the vomiting itself seemed to have been more marked while the patient was taking it.

Griffith gave phosphate of sodium without marked success, and all observers are agreed as to the advisability of regulating the diet and bowels, and of improving the general condition by hydrotherapy, exercises, and fresh air. *Marfan* states that injections of morphine have proved beneficial in allaying the vomiting, and recommends giving alkalies in some form or other combined with bromide of sodium, under which treatment the attacks have been observed to become shorter and less severe.

ON THE ETIOLOGY OF TUBERCULOSIS IN INFANCY AND CHILDHOOD.

By PAUL MATHEWS, M.B.

*Late Resident Medical Officer, Newcastle Sick Children's Hospital;
formerly House Physician, Edinburgh Royal Infirmary.*

THE etiology of tuberculosis in infancy and childhood is of such importance from the point of view of prophylaxis that the following paper is offered without further apology. Numerous statistics have from time to time been published having regard to the factors usually accepted as important in the production of tuberculosis in children. Such statistics usually refer to cases collectively rather than individually, and the following paper attempts to estimate the importance of certain etiological factors in individual cases and to compare the pathological types of tuberculosis according to the etiological factor which may appear to have been predominant. The material upon which the paper is based is gathered from the clinical and post-mortem notes of twenty-five consecutive cases of fatal tuberculosis occurring in the Newcastle Sick Children's Hospital.

The frequency of tuberculosis in infancy has been variously

estimated, the variation in the estimates being due to the different sources from which the statistics have been compiled. That the condition is more frequent in large towns than in rural districts no one will deny, and the patients of the above institution being mainly derived from a thickly-populated industrial district, where poverty and overcrowding are frequent, it is not surprising that the percentage of tuberculosis is high.

Thus out of 615 cases admitted as in-patients between October the 1st, 1904, and September the 31st, 1905, no less than 183 were suffering from some form of tuberculosis—a percentage of 29·7. If, however, we deduct from the 615 all the cases of congenital malformation and the cases of mere neglect and bad feeding, we find the percentage much higher—41 per cent.—in other words that 41 per cent. of all the children admitted for treatment for *acquired disease* were suffering from some form of tuberculosis. Even this estimate probably falls short of the mark, as many cases doubtless suffered from tuberculosis in an early and unsuspected form.

The age incidence of tuberculosis is of importance. When we recollect that tuberculosis is a chronic disease—although much more rapid in infants than in adults—we should not be surprised if the bulk of our cases occurred in later childhood. Latham (1) says the condition is rare before six months, from which age the incidence increases up to two years, when it reaches a maximum and then declines. This age incidence he ascribes to the infection from milk, which between these ages forms such an important article of diet. I intend to refer more fully to this point later. The fact that an appreciable number of cases are recognisable at six months point to the fact that infection must be not infrequent during the first few months of life. The difficulties of detecting tuberculosis at this age, and the fact that many cases are unsuspected until discovered in the post-mortem room render it probable that the condition is more frequent during the early months than is usually believed.

Of our own cases the incidence was as follows :

Of all cases under 1 year 36 per cent. were tuberculous.

„	„	from 1 to 2 years	36 per cent.	were tuberculous.
„	„	„ 2 to 3	„ 35·5	„ „
„	„	„ 3 to 5	„ 46	„ „
„	„	„ 5 to 12	„ 42	„ „

The uniformity of the rate is somewhat surprising. As tuberculosis in infancy runs such a rapid course and so frequently is fatal, it is not surprising to find that the age incidence of the fatal

cases is somewhat different. Thus, of the 28 cases which proved fatal the age incidence was :

Under 1 year	9
1—2 years	5
2—3 „	5
3—5 „	3
5—12 „	6

Still (2) published an analysis of 269 post-mortem records from the Children's Hospital, Great Ormond Street, his figures for the corresponding years being :

—1 year	45
1—2 years	72
2—3 „	35
3—5 „	62
5—12 „	55

Thus 56 per cent. of his cases occurred in children under three years. The enormous number of cases occurring in infants, and the frequency with which the abdominal glands have been found to be affected, have led many to believe that the vehicle of infection is milk. Some authorities have even gone so far as to say that all cases are the result of milk-borne infection. Thus Nathan Raw (3) recently stated that in an investigation of 400 cases of tuberculosis in infants, in only two cases could the possibility of infection be traced to the mother, all the others being fed on cow's milk.

I venture to think that this theory entirely overlooks factors of equal or greater importance, and to believe that a critical examination of the morbid lesions found, coupled with a study of the personal and family history of the patient, will not support such a theory.

The channels of infection usually recognised are five in number, viz. (1) hereditary transmission; (2) through the alimentary tract; (3) through the respiratory tract; (4) through the skin; (5) by direct inoculation into the tissues.

The last method may be ignored in our own series, which only affords one doubtful case in which there appeared any reasonable possibility of the channel of infection being through the skin.

Hereditary transmission has been shown to occur experimentally, and is believed by Baumgarten to be the cause of the frequency of tuberculosis in early life, the bacilli remaining dormant for some time. Though we must admit its possibility, there is a general consensus of opinion that it is a negligible quantity, and there are less than twenty authenticated cases in the literature.

The remaining channels of infection are the all-important ones for

most practical purposes. Undoubtedly infection through the skin is more frequent and more easy in children than in adults, and it has been maintained by Gastou (4) to be the principal path of entry of the bacillus in childhood. In spite of this, however, we must regard the alimentary and respiratory systems as being the avenues of infection in the vast majority of cases.

Consideration will show that the bacilli may gain entrance to the alimentary mucosa in a variety of ways. The mucosa of the upper regions of the system are exposed to infection from (1) the food ; (2) the patient's own sputum, if he be phthisical ; (3) the inhaled air, if he be a mouth-breather. The mucosa of the lower regions of the system are similarly exposed to infection from the food, sputum and secretions of the mouth, pharynx, and upper respiratory tract. The frequency with which infection of the intestines takes place as the result of swallowing sputum has long been recognised, and is in no class of patient more important than in children who habitually dispose of their sputum by this method.

The production of so-called alimentary tuberculosis by continual swallowing of mucus and other secretions of the mouth laden with bacilli appears to have been overlooked and its possibilities slighted.

While it will be readily admitted that food may be contaminated in many ways and from many sources, it has been assumed, perhaps too readily, that milk is the usual vehicle, and that the milk of tuberculous cows is of paramount importance in the production of tuberculosis. As stated before, Nathan Raw ascribes all cases occurring in infancy to this source of infection. Other investigators, while admitting the frequency of "alimentary tuberculosis" and the possibility of milk infection, have put the estimate at a more moderate figure. Thus, Still (2) out of 269 cases, considered that infection came through the alimentary system in 63 cases—28 per cent. (46 cases being deducted as doubtful); and Shennan (5) arrives at a similar percentage in an analysis of 374 post-mortem records. Carr (6) found an alimentary origin in 20 cases out of 120, Price Jones (7) in 6 cases out of 21. Very much lower estimates have been published by Northrupp (8). These discrepancies are due to the different criteria accepted by different observers in estimating the "origin" of tuberculosis in their cases. Thus, Koch (9) insists on the presence of primary intestinal tuberculosis, which is exceedingly rare, and he accordingly estimates infection from the milk of tuberculous cows as being as rare as hereditary transmission (10). Dr. Coutts (11) says he has seen only one instance of it.

The occurrence of "alimentary tuberculosis" by no means

proves that milk has been the vehicle of infection. Admitting that alimentary tuberculosis appears to be of greater frequency in infants than in adults (Hueppe (12) puts it at 35 per cent. in children), and admitting that milk forms a more important article of diet *among children of the better classes* than among adults, the fallacies of the position are numerous. The statistics are almost without exception gathered from hospital patients—a class by whom fresh cow's milk is used to a very much smaller extent than by the upper classes. Among these classes, too, much less attention is paid to cleanliness, and food is frequently taken from dishes and cooking utensils which are not cleaned, and which are constantly exposed to contamination. Frequently many members of a family make use of the same eating utensils, and if one member be phthisical the possibility of infection of the others is obvious. The frequency with which children in this class are fed, not on fresh milk, but on proprietary foods, condensed milk, *et hoc genus omne* must be borne in mind. In the same classes infants are frequently brought up from the first on patent foods, or are kept on the breast until eighteen months old, or even older, and thence transferred to "ordinary diet." How frequently in inquiring into an infant patient's diet one is met with the answer that it "gets just the same as us"! Even when the child is fed on milk the mother usually puts the teat of the feeding-bottle into her own mouth prior to giving it to the child, and that the child may ingest bacilli from a tuberculous mother in this manner scarcely admits of doubt. In connection with this point I wish to draw attention to the history of Case No. 17, in which transmission in this method from a phthisical relative appears to have been exceedingly probable.

From our series of cases twelve occurred in children under eighteen months of age, and of these no less than five were breast-fed entirely until the day of admission into hospital, two had been fed throughout on proprietary foods; and of the remaining five one certainly developed symptoms of tuberculosis while still on the breast, one was the case already referred to, in which there were strong grounds for suspecting the "dumb teat" as the vehicle of transmission from a tuberculous relative to the patient, and in two of the remaining three cases one or other of the parents was phthisical.

Above the age of eighteen months the child is under different circumstances as regards diet and environment. With the exception of meat his diet—in the classes from whom these patients are drawn—consists mainly of bread and butter, potatoes, vegetables, milk (in small quantities), tea, etc., thus differing little from the diet of his

parents, except as regards meat. At this age, too, he begins to crawl about, or walk about, commencing, as Price Jones (7) has put it, "to mix with his fellows and the world's dirt." That the said dirt is frequently infected with tubercle bacilli may be accepted, I think, as by no means improbable in the crowded rooms occupied by the lower classes of our large cities. When we recollect the frequency with which a phthisical adult expectorates, and remember that this is frequently done without any attempt to destroy the sputum, which usually alights on the floor, and finally, when we consider the tendency possessed by children of this age to subject whatever they may find to the sense of taste, we must admit that here, too, is a source of infection that cannot be ignored. Yet tuberculosis so contracted would probably give rise to a true alimentary tuberculosis, though there need be no suspicion of milk being the vehicle of transmission.

Examination of Still's figures shows that 56.5 per cent. of his cases occurred under three years of age, and that above that age the condition is much less frequent. A possible explanation of this is that above this age the children are less confined to the house and are more in the streets, where there is less chance of dust being infected, and where dust so infected is more exposed to sunlight, which has been shown to have an inimical effect on the bacillus of tubercle (13). We may note, also, that the child's respiratory passages are now further from the ground, owing to the child's growth in height, and it has been shown by Cornet (13) that the occurrence of tuberculosis in rabbits kept in a room with dried sputum scattered on the floor depends on the height above the floor at which the rabbits are kept.

From what has been said it is evident that it is unwise to estimate the frequency of infection of children from tuberculous cows merely from the frequency of so-called "alimentary tuberculosis." Such cases frequently have their origin from transmission from other cases of tuberculosis.

The second channel of infection—*via* the respiratory system—has been accepted as important ever since tuberculosis has been studied. Recently, however, opinions have not been unanimous, and there is a growing tendency to discount this channel of infection; indeed, Behring (14) and his followers teach that infection is always per alimentary system and that pulmonary tuberculosis is secondary to this. In children tuberculosis of the lungs presents many differences from the same disease in adults, the most important being the early and extensive involvement of the bronchial glands; caseation and

cavitation are not so frequent, and the apex is not so often the starting-point of the condition. The last-mentioned difference may be due, as His has pointed out, to the differences in the configuration of the bronchial tree in children, or to the more usually accepted explanation that infection of the lung in children takes place from the bronchial glands. In a recent essay Walsham (16) quotes four cases, all occurring in children, in which direct infection from bronchial gland to lung appears to have taken place. In the present series this seems to have occurred in more than one case, the most obvious being Case No. 5. The possibility of infection of the lungs *viâ* the bronchial glands is of importance, as the glands themselves may be infected from a tuberculous process elsewhere (see Case No. 23). Walsham (16) examined the cervical glands in twenty-six cases of pulmonary tuberculosis (mostly in adults) and found evidence in them of tuberculosis in all cases. It by no means follows that the tuberculosis was primary in these glands, for he himself has shown the frequency with which the glands may be infected from the tonsil, which in patients suffering from late phthisis must be constantly exposed to infection from the sputum. Out of twenty cases of tonsillar tuberculosis Walsham regards it as primary in two cases only, all others being due to this auto-infection. These figures are supported by those given by Cornet (13)—that the tonsils were tuberculous in forty-eight cases out of fifty of severe phthisis, but only in six cases out of thirty-four in which the lung was only slightly or not at all involved. Experimentally, tuberculosis of the mediastinal glands by infection spreading down from the cervical glands has been produced in pigs by Professor Martin (17), and such a line of infection appears to be possible (see Case No. 23) though unusual. While many cases of tuberculous glands in the neck are due to invasion through the tonsil, tuberculosis of the cervical glands is by no means always due to "alimentary tuberculosis," for these glands may be infected from the upper respiratory tract, or from the skin, and even in cases of tonsillar infection the entrance of the bacilli may be associated with respiration rather than the ingestion of food among the mouth-breathers who are so numerous among children of this class.

In considering infection *viâ* the respiratory system, invasion *viâ* the Eustachian tube and middle ear must not be forgotten, though its frequency is often under-estimated. Thus, in Still's series of 269 cases there was middle-ear infection in fifteen cases, of which no fewer than thirteen were infants under two years of age. Tuberculosis of the middle ear is by no means infrequent as a complication of late phthisis. It appears, however, to be rarely primary in this

position, except in infancy. An explanation of this may lie in the comparative shortness and width of the Eustachian tube in infancy, and in the fact that currents of air may pass up the tube during the movements of sucking which are essential to nutrition during the early months of life. In our own series there was tuberculosis of the middle ear or temporal bone in no less than seven cases, and of these three were infants under one year, and the oldest was only two years. After the second year of life primary tuberculosis of the middle ear is less frequent, although the frequency of adenoids must expose the patient to the risk of infection from them passing up the tube, for adenoids have been found to be the seat of tuberculosis in 3 per cent. of cases examined by McBride and Logan Turner (18), while Lartigan and Nicoll (19) examined the adenoids of seventy-five children who appeared clinically to be free from tuberculosis, and found evidences of tubercle in more than 16 per cent.

While hereditary transmission has rarely been satisfactorily demonstrated to have actually occurred, cases in which infants have been infected from tuberculous parents are sufficiently frequent to fully explain the popular idea that phthisis is hereditary. In our own series there is a history of tuberculosis in one or other parent in eight cases, while other members of the family to whom patient was exposed were known to be tuberculous in five cases. The family history could not be obtained in seven cases. Thus, there is definite history of frequent contact with a tuberculous individual (in some cases with more than one) in thirteen cases out of eighteen.

Cornet (13) has pointed out that, while the incidence of tuberculosis varies for different ages, the mortality during infancy corresponds roughly to the "years of pregnancy"—*i. e.* to the mortality in subjects from twenty to forty, a correspondence which is highly suggestive of infection of the infant from tuberculous parents.

The point to be emphasised is that the majority of tuberculous infants appear to be infected from tuberculous relatives, and not from the milk of tuberculous cows, even in cases where the invasion may appear to have been through the alimentary system.

The universality of the lesions in the tuberculosis of children and the rapid extension combine to render it exceedingly difficult to determine the site of entry and mode of extension from the post-mortem findings only. Thus in 120 cases analysed by Carr (6) there was generalised tuberculosis in 82 cases, and in 11 cases the starting-point seemed to be multiple. In our own series both alimentary and respiratory systems were affected in eighteen cases. In analysing his cases Still (2) adopted as a criterion the condition

of the lesions in the lymphatic (1) glands, to determine which was the mode of entry; yet this merely slightly diminishes the difficulty and does not destroy it, for Still himself only speaks positively in 172 cases. In many cases the changes both in the bronchial and mesenteric glands are so advanced that it is impossible to state which has been infected first.

Examination of our 25 cases reveals the following points:

(1) The lungs showed tuberculous changes in 23 cases, and in only 2 of these were the changes entirely miliary.

(2) The bronchial glands showed macroscopic changes in 19 cases.

(3) The mesenteric glands showed macroscopic changes in 20 cases.

(4) The intestinal mucosa showed changes in 15 cases, in connection with which it should be stated that in all of these cases there was advanced pulmonary tuberculosis, and in no less than eight there was actual cavitation.

When we remember that Baginsky (20) in 933 autopsies never found tuberculosis of the intestines without finding lesions in the lungs or bronchial glands, the dependence of intestinal ulceration on the swallowing of tuberculous sputum appears to be intimate. In cases of ingestion of tuberculous sputum the mucus of the sputum appears to act as a protective agent, preventing the acid gastric juice from reaching the bacilli, which are, however, liberated when the mucus is dissolved by the alkaline intestinal contents. Hence tuberculosis is rare in the stomach but occurs in the intestine. For the same reason in none of our cases, even where there was very extensive ulceration of the rest of the intestine, was there any macroscopic lesion of the duodenum—where the contents are still acid in reaction. Swallowing tuberculous sputum entails infection by an enormous dose, and hence the prominence of the local lesions in the intestine, for Martin (21) has pointed out that in his feeding experiments when the dose has been small the lesions in the gland are much more marked than in the mucosa, but where the dose has been large the reverse holds true.

In Carr's (6) 120 cases there were intestinal ulcers in 17 cases, of which 8 had cavities in the lungs.

The frequency of miliary tuberculosis in children is well shown by the series in which it occurred in eleven cases.

CASE 1.—J. M—, aged 6 months. Patient's mother is healthy; father has phthisis; patient was youngest of five, of whom one has phthisis; patient was breast-fed until the day of admission.

Post mortem.—Small patch of caseating tubercle in upper lobe of left lung; bronchial glands caseating; miliary tubercles throughout both lungs and in liver, spleen, and peritoneum; tuberculous meningitis; intestinal mucosa and mesenteric glands appear healthy.

CASE 2.—E. D—, aged 11 years. Patient's mother died of phthisis; father healthy; one sister healthy. Feeding (?)

Post mortem.—Extensive cavitation of both lungs, the upper lobes being mere shells; the rest of the lungs consolidated; bronchial glands enlarged; numerous ulcers in small intestine; appendix tuberculous; mesenteric glands show very early tuberculous change.

CASE 3.—R. K—, aged 3 years. Parents healthy; patient is one of seven, of whom two have died of tuberculosis; patient was breast-fed for sixteen months.

Post mortem.—A very large cavity in the left base; consolidation of right base, with patches commencing to break down; bronchial glands enlarged; intestines showed early ulceration; mesenteric glands enlarged.

CASE 4.—F. E—, aged 1 year 8 months. Parents healthy; younger of two, the other healthy; breast-fed for one year and two months; had had a cough for six months.

Post mortem.—Extensive broncho-pneumonic consolidation of right upper lobe; bronchial glands caseous; early ulceration of intestine; mesenteric glands enlarged; miliary tubercles throughout lungs, liver, spleen, peritoneum, and meninges.

CASE 5.—J. C—, aged 2 years 10 months. Father has phthisis; mother healthy; there are six children; none of the others have tuberculosis; patient was breast-fed eighteen months.

Post mortem.—Cavity in upper lobe of right lung, with broncho-pneumonic tubercle in the base; bronchial glands caseous and breaking down; intestinal mucosa appeared healthy; mesenteric glands caseous. Miliary tubercles in spleen and meninges.

CASE 6.—M. M—, aged 11 months. Father had phthisis; mother healthy; youngest of seven, of whom four have died (cause?); patient was breast-fed six months.

Post mortem.—Patch of caseating phthisis in right upper lobe; bronchial glands caseous and breaking down; commencing ulcers in intestine; mesenteric glands caseous; miliary tubercles in lungs, liver, spleen, suprarenals and peritoneum; meninges showed no tubercles.

CASE 7.—W. C—, aged 4 months. Father has phthisis (he died soon after patient). Mother healthy. Patient is youngest of three; the others are healthy; patient was breast-fed until admission.

Post mortem.—Extensive tuberculous broncho-pneumonia of both lungs, with small vomica in right upper lobe; bronchial glands caseous; intestinal mucosa healthy; mesenteric glands caseous; miliary tubercles in liver, kidneys, and spleen.

CASE 8.—M. J. S—, aged 8 years. History not known.

Post mortem.—Scattered patches of fibro-caseous phthisis throughout both lungs, with small cavity in left upper lobe; bronchial glands slightly enlarged; intestines showed numerous ulcers; mesenteric glands caseous; the right kidney was converted into a huge sac containing tuberculous pus; left kidney showed extensive tuberculous changes.

CASE 9.—J. D—, aged 11 years. Mother died in childbed, is stated to have suffered from chest complaint; father healthy; patient is eldest of four, the others being healthy.

Post mortem.—Extensive cavitation in both lungs, the rest of the lung-tissue being solid; bronchial glands slightly enlarged; extensive ulceration of intestines; appendix tuberculous; mesenteric glands caseous; a small caseous tubercle was found in cortex of right kidney.

CASE 10.—A. W—, aged 9 years. No history of tuberculosis in the family; history as regards feeding not definite.

Post mortem.—Extensive disorganisation of hip-joint; small patch of consolidation in right apex; bronchial glands enlarged; tuberculous meningitis; intestines and mesenteric glands show no signs of tuberculosis.

CASE 11.—M. H—, aged 9 months. Parents healthy; youngest of three, others healthy; patient was breast-fed until admission; he had had otorrhœa for three months.

Post mortem.—A small patch of tubercle in base of left lung; bronchial glands not enlarged; extensive caries; tuberculosis of right temporal bone; miliary tubercle in lungs and spleen; mesenteric glands showed no signs of tubercle.

CASE 12.—M. G—, aged 3 months. Parents healthy; youngest of nine, of whom one has enlarged cervical glands; breast-fed for two months; patient had enlarged glands in neck and behind ear while still breast-fed.

Post mortem.—Tuberculous disease of middle ear with destruction of temporal bone, miliary tubercles in lungs and spleen; bronchial and mesenteric glands showed no signs of tubercle. Numerous caseating glands in neck.

CASE 13.—W. E—, aged 4 months. Mother has phthisis; father healthy; only child; breast-fed for one month, then fed on cow's milk; symptoms of tuberculosis of middle ear commenced one month later.

Post mortem.—Very extensive caries (tuberculous) of right temporal bone, with complete destruction of middle ear and caseation of cervical glands; miliary tuberculosis of lungs. Bronchial glands appeared healthy.

CASE 14.—E. B—, aged 1 year 9 months. No history of tuberculosis; parents healthy; patient was breast-fed for sixteen months.

Post mortem.—Acute pneumonic phthisis, with commencing softening; bronchial glands enlarged; mesenteric glands showed no signs of tubercle; tubercle bacilli found in *débris* in middle ear; meningeal vessels thrombosed.

CASE 15.—W. R—, aged 6 months. No history of tuberculosis, patient was breast-fed until admission.

Post mortem.—The only organs showing tuberculous lesions were the mesenteric glands, which were caseous.

CASE 16.—E. V—, aged 9 years. Parents healthy, six children, the others healthy.

Post mortem.—Patch of consolidation in right upper lobe; bronchial glands not enlarged; extensive ulceration of intestine; mesenteric glands caseous.

CASE 17.—G. O'N—, aged 5 months. Parents healthy. The mother's father died two months previous to admission of patient (lived in same house as patient). The mother's mother has phthisis, she had slept with and nursed the patient ever since he was weaned. She was in the habit of always putting the "comforter" and the teat of the feeding-bottle into her own mouth prior to giving them to patient. Patient was breast-fed three months.

Post mortem.—Caseous patch in right base; bronchial glands caseous; intestines showed extensive ulceration; mesenteric glands formed very large caseous masses; miliary tubercles were found in both lungs, spleen, peritoneum, liver, and both kidneys; while a

large caseous tubercle occurred on the base of one of the flaps of the pulmonary valve.

CASE 18.—W. G—, aged 2 years 3 months. History not known; patient died from paralysis of diaphragm due to subphrenic abscess.

Post mortem.—No signs of tubercle anywhere except in mesenteric glands and right hip-joint; early stage.

CASE 19.—G. F—, aged 1 year. Parents healthy; only child; patient was fed from birth on patent foods.

Post mortem.—Broncho-pneumonic tubercle in both lungs, caseation commencing in right lung; bronchial glands enlarged; intestines showed early ulceration; mesenteric glands caseous; spleen showed a large caseous tubercle; tuberculosis of right ear and of cervical glands.

CASE 20.—A. W—, aged three months. Illegitimate child; mother healthy; health of father not known; patient fed throughout on patent food.

Post mortem.—Small tuberculous patch in upper lobe of right lung, commencing to excavate; bronchial glands caseous and breaking down; early ulcers in the intestines; bronchial glands caseous; miliary tubercle in lungs, liver, spleen, and peritoneum; a single tubercle was found in the endocardium of right ventricle of heart; no meningeal tubercle.

CASE 21.—G. H—, aged 1 year 6 months. Family history not given; patient was breast-fed for eleven months; onset of symptoms commenced three months ago.

Post mortem.—Small patch of broncho-pneumonic tubercle in upper lobe of right lung; bronchial glands caseous and breaking down; early ulceration in the intestines; mesenteric glands caseous; small area of caries in the left temporal bone.

CASE 22.—A. P—, aged 6 years. Mother died of phthisis; father has had hæmoptysis; patient is second child of three; both the other two died of phthisis; history of feeding not known.

Post mortem.—Extensive consolidation of both lungs, with large cavity in left base and smaller cavities in both apices; bronchial glands caseous; extensive ulceration of intestines; mesenteric glands massive and caseous; tuberculous abscess in appendix.

CASE 23.—J. D—, aged 2 years. No history of tuberculosis in family; patient was breast-fed nine months; patient had been operated upon for tuberculosis of retropharyngeal and cervical

glands about four months prior to decease. Subsequently signs of pulmonary tuberculosis set in, and developed rapidly.

Post mortem.—Consolidated patch in apical lobe of right lung (extension from glands); bronchial glands caseous, especially on right side; intestines showed no sign of tubercle; mesenteric glands caseous; appendix tuberculous; larynx showed ulceration of aryteno-epiglottidean folds; retropharyngeal and cervical glands caseous; caries of right temporal bone and tuberculosis of middle ear; miliary tubercles scattered over the left lung.

CASE 24.—F. H—, aged 4 years. Family history, no cases of tuberculosis; history of feeding (?).

Post mortem.—Consolidation and early excavation in apex of right lung; bronchial glands caseous; scattered ulcers throughout small intestine; mesenteric glands caseous; miliary tubercles in lungs, spleen, liver, kidneys, peritoneum, pericardium, and meninges. In addition to miliary tubercles were several large caseous masses the size of marbles in the spleen.

CASE 25.—H. M'D—, aged 1 year 2 months. Father died six weeks prior to patient from phthisis; mother healthy; patient is youngest of six, of whom one died from pneumonia (tuberculous?) and one from convulsions; patient slept in the same bed as the father, and developed a cough when ten months old; patient was breast-fed until admission.

Post mortem.—Extensive consolidation, with early cavitation in both bases; scattered patches of broncho-pneumonic tubercle in both upper lobes; bronchial glands caseous; intestines showed numerous tuberculous ulcers, some the size of a shilling; mesenteric glands caseous, a few were found to be actually cretaceous; no sign of tuberculosis of the other organs.

In the above cases the bronchial and mesenteric glands were affected with almost equal frequency. In only four cases were the mesenteric glands affected and not the bronchial glands (Nos. 13, 15, 16, and 18), of whom two were in infants under one year, of whom one was breast-fed until admission to hospital, and the other had a phthisical mother. Three had tuberculosis of the bronchial, but not of the mesenteric glands, and of these one was breast-fed until admission and had a phthisical father.

From consideration of the above cases it appears that the history does not enable one to foretell whether the bronchial or mesenteric glands will be primarily infected and conversely that the post-mortem

appearances afford no clue, in the majority of cases, as to the source of infection—*i. e.* whether infection has been due to frequent association with another tuberculous individual or to the ingestion of infected milk. For in the cases described the bronchial and mesenteric glands were affected with equal frequency in such cases, as there was reason for suspecting infection from another tuberculous individual. Of the cases in which the mesenteric glands were affected there was a history of constant association with another tuberculous individual in 50 per cent., whilst they were affected in no less than 66 per cent. of cases who were entirely fed on the breast or proprietary foods until after the onset of symptoms.

From these facts it would seem that to compute the frequency of milk infection from the frequency of affection of the mesenteric glands in infancy and childhood is to court fallacy unless due attention be paid in each individual case to the history of feeding and to the history of exposure to infection from another tuberculous individual.

I have to thank the Staff of the Newcastle Sick Children's Hospital for permission to make use of the cases in the preparation of this paper.

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NOTES OF A CASE OF LYMPHO-SARCOMA.

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A. L—, aged 11 years, admitted into the Children's Hospital, Sheffield, on December the 14th, 1904. He had been quite well up to two months before admission, being "fat and rosy." It was then noticed that he had swellings under the jaw on both sides, and smaller "lumps" all down his neck. He complained of pain across the abdomen, and it was noticed that he was getting thin and pale. He has vomited frequently, and his bowels have been confined. He seemed very thirsty, and urine has been passed in large quantities.

Previous history.—Has had pertussis and attacks of "bronchitis" in winter.

Family history.—Youngest of five children. Mother has had two miscarriages, and one child born at the eighth month.

Condition on admission.—Child very thin and anæmic. Lymphatic glands enlarged on both sides of the neck, the largest being under the jaw, and about one inch in length. Smaller glands could be felt in the posterior triangles of the neck. These were moderately hard, discrete, and movable under the skin. The glands in the axillæ and groins were slightly enlarged. The abdomen was full. The liver came to three fingers' breadth below the costal margin. The spleen could not be felt. There was a large tumour on each side of the abdomen, the rounded lower end of which came to below the level of the umbilicus; they were in the position of the kidneys, and felt like renal tumours. No abnormal physical signs could be detected in the lungs, and the heart was apparently healthy. The fundus oculi showed no pathological change.

Urine.—Clear, pale yellow; specific gravity, 1014; no albumin or blood.

December the 21st.—In a fresh specimen of blood there was a decided increase in the white corpuscles.

Differential count.—Small lymphocytes, 66 per cent.; large mononuclear, 3 per cent.; polymorphonuclear, 27 per cent.; myelocytes, 4 per cent.; nucleated red corpuscles, 4 in 100, white; no poikilocytosis.

February the 9th, 1905.—Patient seemed weaker and cried easily. The glands in the neck had become larger, but not to any great

extent. The face was swollen and shiny. Mouth very septic, and gums swollen and soft. Weight, 3 st. 10 lb. 4 oz.

Examination of blood.—White corpuscles, 21,500 per cm.; red corpuscles, 4,320,000 per cm.; hæmoglobin, 70 per cent.

Differential count.—Small lymphocytes, 64·5 per cent.; large mononuclear, 16·3 per cent.; polymorphonuclear, 19·04 per cent.; nucleated red corpuscles, 6·6 in 100 white; megaloblasts, 2 in 378 white corpuscles.

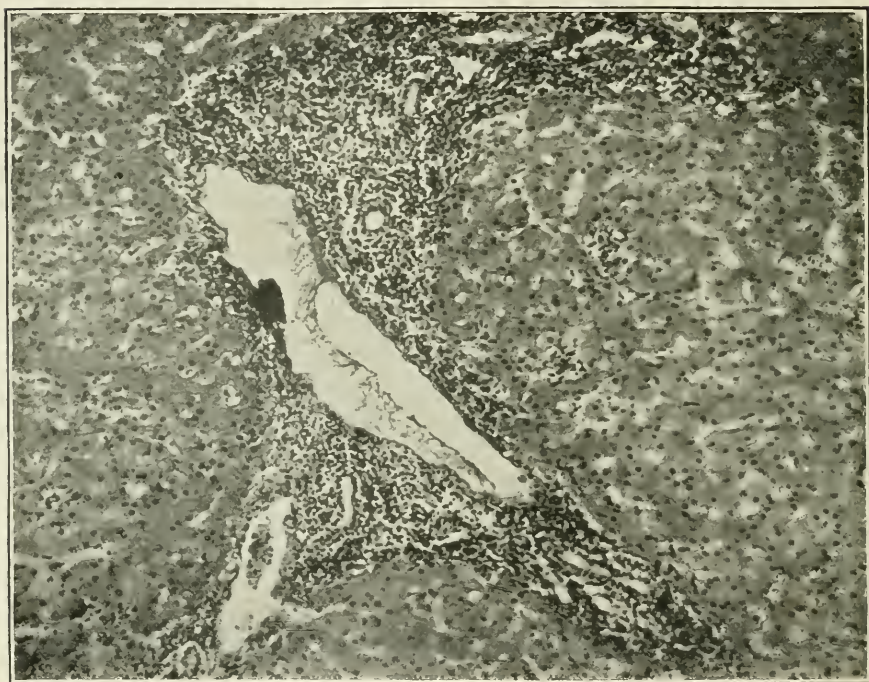


FIG. 1.—Section of liver. $\times 135$.

February the 17th.—Mouth cleaner; face puffy, especially under the eyes. Weight, 3 st. 9 lb. 8 oz.

February the 20th.—*Urine.*—Pale, acid; spec. gr., 1010; albumin, 2 per cent.

February the 23rd.—Patient very weak, gums spongy. Weight, 3 st. 11 lb. 5 oz. Some œdema of the feet and legs had now appeared.

February the 24th.—Patient complained of sharp pain in the right side of his chest, and he became very pallid and dyspnoëic.

February the 25th.—Very ill and blanched. Temperature, 102° F.; pulse rate, 120; respiration, 32. Nares working; great difficulty in breathing; pain in the right side of the chest. A few dry *râles* could be heard on the right side in front, but the back was not examined as the patient seemed so ill. He died at 1 p.m.

Urine passed just before death contained no albumin; some crystals of uric acid were seen under the microscope. The tem-

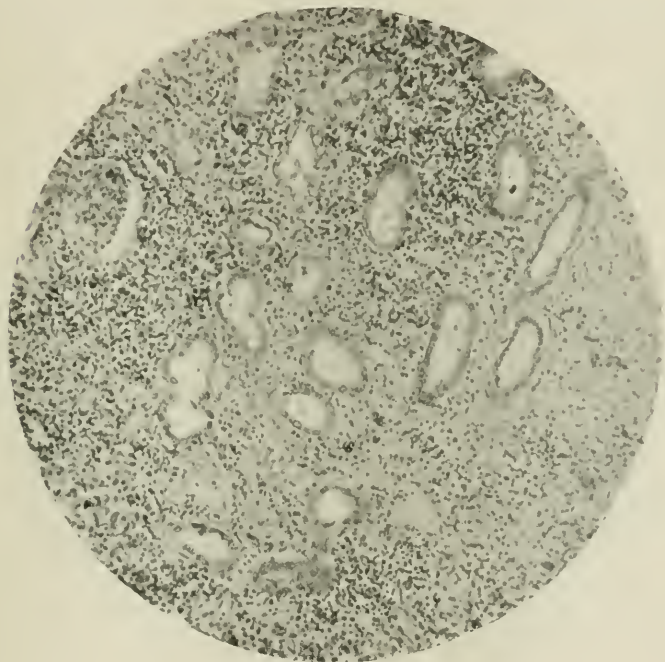


FIG. 2.—Section of kidney. $\times 135$.

perature had been subnormal throughout the course of the illness until just before death.

Treatment.—Arsenic was given for a short time, and not in very large doses, as, owing to the septic condition of the child's mouth, treatment was directed more especially to remedying this.

February the 27th.—*Autopsy: external appearances.*—Body considerably emaciated; some distension of the abdomen; small petechiæ on the outer side of the legs, and at the upper part of the abdomen. There was a bruise at the lower part of the left tibia.

Abdomen.—On opening the body the liver was seen to come three fingers' breadth below the costal margin. The stomach was dilated and distended with gas. It showed small hæmorrhages in its wall. The intestines were dark-green from decomposition.

Liver.—Pale, otherwise no naked-eye changes.

Spleen.—Friable, not enlarged; slight perisplenitis.

Kidneys.—Both were very much enlarged and pale, at first sight looking like large white kidneys. The capsule stripped easily, and the surface showed stellate venules on a pale surface. The right

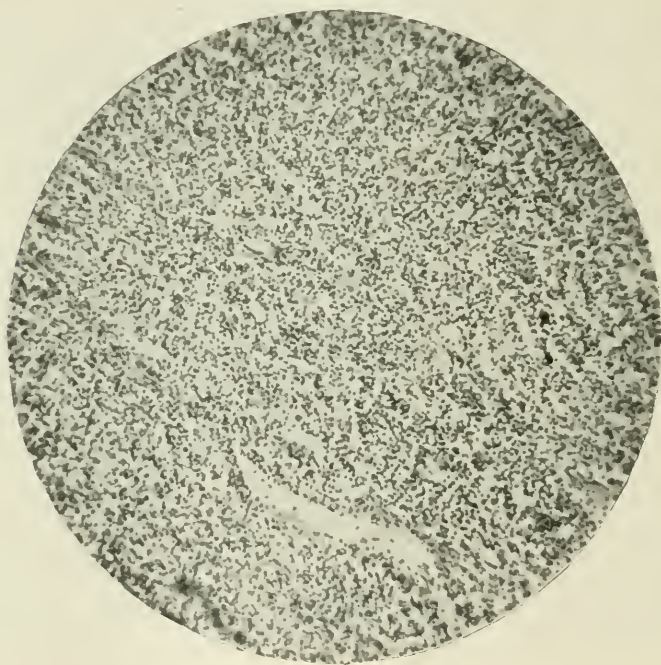


FIG. 3.—Section of lymphatic gland. $\times 135$.

kidney weighed $17\frac{1}{2}$ oz., the left 16 oz. They both measured 7 by $3\frac{1}{2}$ inches. The kidney substance was firm, but too elastic; the pelvis and calices were dilated. The cut surface had a smooth, uniform appearance, cream-coloured, the pyramids appearing as areas of mottled vessels with irregular edges fading into the surrounding pale tissue. The pyramids were practically destroyed in their inner parts.

Ureters were not dilated. *Supra-renal capsules* pale. *Bladder*

full of pale urine. *Stomach and intestines* not opened. *Mesenteric glands* moderately enlarged, not caseous.

Chest.—On removing the sternum a large pale mass, at first thought to be the thymus, was seen lying in the anterior mediastinum. This extended from the root of the neck above and overlapped the pericardium below. It surrounded the great vessels and the trachea without diminishing their lumen. The posterior and

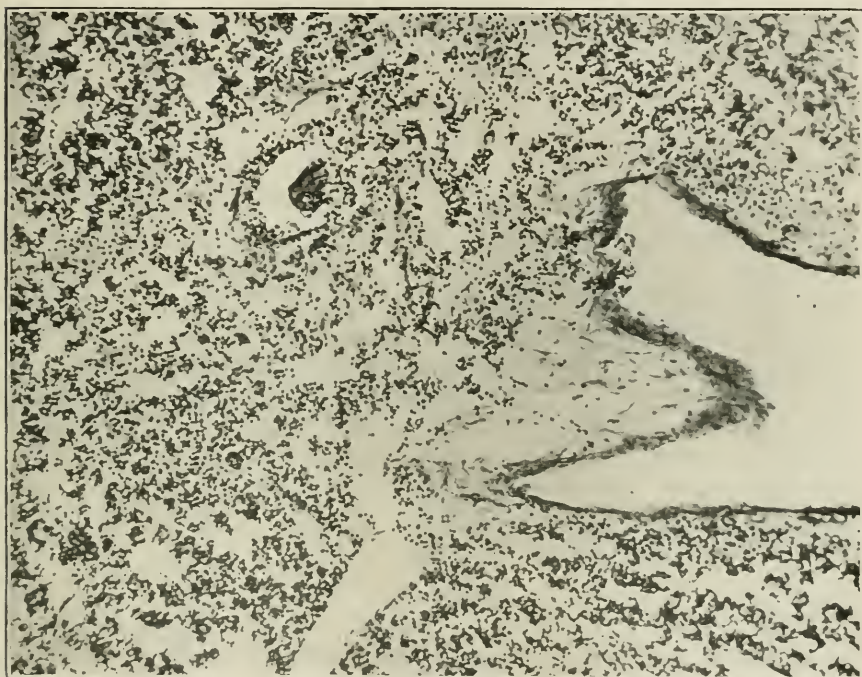


FIG. 4.—Section of mediastinal growth. $\times 135$.

lower aspect was funnel-shaped to receive the pericardium. Neither the lungs nor other adjacent structures were invaded. This mass weighed 7 oz. and measured 5 by $3\frac{1}{4}$ inches. It was very hard in consistence, and proved not to be the thymus, but a diffuse lymphosarcomatosis of the mediastinum.

Lungs.—In the right pleural cavity there were four or five ounces of sero-purulent fluid. On the left side the lung was attached to the chest-wall by numerous fairly recent adhesions, but there was no fluid. Both lungs were œdematous; no consolidation.

Heart.—Weight, 5 oz. Left ventricle hypertrophied. *Cranial cavity* not examined.

Microscopical appearances.—The *kidneys* showed an enormous increase of small round cells, separating widely the tubules, which were moderately dilated, and the epithelial lining of which showed signs of degeneration. There was a very scanty reticulum between the cells. The *glands* showed the same large increase of small round cells, without a corresponding increase in the fibrous tissue. The *liver* had masses of small cells between the lobules, chiefly surrounding the bile-ducts, but they were also scattered between the liver-cells. The growth in the mediastinum had the same masses of small cells as the other organs, but there was considerably more fibrous tissue. A few endothelial plates were seen scattered throughout the section. No evidence of thymus structure could be detected. I have searched through a considerable quantity of literature, but have been unable to find a case described corresponding to this one. The nearest approach to it is a case described in the 'Pathological Transactions,' vol. xlvii, 1896, p. 117, by Parkes Weber. But though the appearance of the kidneys seems to have been somewhat similar, some part of them escaped, and the primary growth was in the cæcum, the other organs affected being the appendix, diaphragm, pericardium, mesenteric and mediastinal glands. Microscopically the kidneys showed separation of the tubules and glomeruli by small round cells and scanty reticulum, but, as stated above, some of the kidney substance escaped, whereas in my case the kidney was uniformly infiltrated.

My reason for reporting this case, which in many respects might pass without particular notice, is the very striking and unusual condition of the kidneys. To find both kidneys measuring 7 inches by 3 inches in a child of eleven years must be an unusual occurrence. To realise their abnormal size best is to place them alongside the child's heart, itself slightly hypertrophied, when they are seen to be more than twice the bulk. The extreme infiltration of the interstitial tissue throughout, with round cells similar to those in the mediastinal growth and lymphatic glands elsewhere, is in curious contrast with the only occasional presence of albuminuria, and it is difficult to understand how, in so extensive kidney changes the urine could help containing considerable proteid on all occasions.

In conclusion, I must acknowledge my indebtedness to Professor Arthur Hall, of Sheffield University, for help in both the macroscopic and microscopic examination of the tissues, as well as in other ways, and also to Dr. Margaret Duncan, house-surgeon at the

Sheffield Children's Hospital, for her careful notes, and for the excellent micro-photographs which she has taken some trouble to obtain.

The Society for the Study of Disease in Children.

A MEETING of this Society was held on February the 16th, Mr. A. H. TUBBY being in the chair.

Cases of Meningocele Occipitalis, Meningocele Lumbosacralis, and Thyroglossal Appendage, illustrated by a lantern demonstration, were shown by Mr. HOWELL EVANS. He remarked that it is stated the most frequent cause of spina bifida is the non-union of the laminae of a vertebra or vertebrae; this is not so, but the interposition of the membranes prevents the normal union of these osseous centres. He believed the cause of the formation of these protrusion cysts to be due to the toxicity of definite chemical bodies of primary maternal origin; these diffusible poisons transferred to the embryo stimulate certain epithelial or secreting surfaces, with consequent increase of secretion.

Two Cases of Jaundice in Children were the subject of a paper by Dr. F. J. POYNTON. The first case was that of a female infant, aged 3 months. She was suffering from well-marked obstructive jaundice, which had lasted since birth. The liver was large but not tender or unusually hard; the spleen was not felt. The temperature was generally subnormal. There was not the least evidence of any specific disease. The jaundice had on the whole diminished a little since birth, although it was at eight months very definite. The most interesting feature in the case was the occasional appearance of a little bile in the stools, with a concomitant improvement in the colour of the skin. Fats and proteids were passed in the motions undigested, and the child suffered from flatulence. Gradually the jaundice became less distinct although the stools remained very pale, and a change was made to pure ass's milk, which, on account of its digestibility and slight percentage of fat, is an admirable food for such a case. Before the child was twelve months old the jaundice had disappeared, and she became a particularly healthy little girl. The condition was attributed to a viscid bile, together with possibly unusually small biliary channels. The second case was that of a boy of 4 weeks with obstructive jaundice. No sign of a congenital taint could be discovered. The jaundice appeared on the third day. The liver was large and not tender, the spleen was not felt. One feature was the occasional appearance of a little bile in the stools, with a concomitant lessening of the jaundice. Two months later the child was seen again, and though still jaundiced the motions were mustard-coloured, and the liver distinctly smaller. Subsequently the jaundice disappeared, although there was still some deficiency in bile.

Notes on a Case of Splenomegalic Biliary Cirrhosis in a Boy aged 6½ years were communicated by Dr. E. CECIL WILLIAMS (Bristol). The child, who lived in a Cotswold village, was said never to have been very robust. The mother died of consumption; there was a doubtful history of paternal syphilis. Three years ago the child became jaundiced and was said to have an enlarged liver. On admission into the Bristol Children's Hospital the conjunctivæ were yellow, and the rest of the body had a lemon tint. The abdomen was much distended, girth 26 inches, enlarged veins over surface. Liver dullness extended from the fifth rib to the level of the umbilicus, where its free edge could be felt; left lobe could also be felt below the ensiform cartilage. Spleen much enlarged, extending from the eighth rib to within a couple of fingers' breadth of the iliac crest in the axillary line. Its notch could be felt about 2½ to 3 inches from the umbilicus; it was dense and smooth. There was no ascites or oedema of the legs. Urine, acid 1027, no albumin or sugar, trace of bile (Gmelin's test). No enlargement of lymphatic glands; marked clubbing of fingers and toes. There was nothing out of the way in the blood-picture. Hæmoglobin 62 per cent. Red cells 5,400,000 per c.mm.; white cells 9545 per c.mm. Differential count: polynuclear, 38 per cent.; uninuclear, 3·3 per cent.; eosinophile, 11·6 per cent.; lymphocyte, 46 per cent. On admission his temperature was normal until October, when there was a rise of temperature over 101° F., with an increase of jaundice; with the fall of temperature the jaundice gradually decreased, and at the present time there was no jaundice. The motions were pale, subsequently they became yellow. Dr. Cecil Williams considered the case to be an example of the juvenile type of splenomegalic biliary cirrhosis described by Gilbert and Fournier. Clubbing of fingers and toes was a much more constant symptom in this form than in the adult type. Whether the splenic or hepatic enlargement was primary could not be ascertained. It was probable the enlargement of both organs was due to the circulation of some toxin, which acted selectively and more especially on the spleen, and then, passing along the splenic vein, acted upon the smaller bile-ducts, causing a descending cholangitis, or perhaps it was due to a poison, manufactured in the intestine, ascending the smaller bile-ducts and so to the spleen along the splenic vein. Against this view was the fact that the infection would have to travel against the blood-stream. The absence of any changes in the blood precluded the idea of this being a condition analogous to Banti's disease, which is the termination of the splenic anæmia of adults in multilobular cirrhosis and ascites. Sodium salicylate had proved the most useful drug, antisyphilitic remedies having been used without any apparent success.

Two Specimens of Tuberculosis of the Stomach were shown by Dr. F. LANGMEAD. Case 1, aged 8 months, suffered from whooping-cough. There were no symptoms referable to the condition of the stomach, vomiting only following the paroxysmal cough. Post mortem there was general tuberculosis, the meninges, lungs, spleen and kidneys being all affected. The whole of the intestine showed small tuberculous ulcers, most crowded in the duodenum and jejunum. On the anterior wall of the stomach were six shot-like, submucous tubercles, each capped by a tiny ulcer, and two more were situated on the greater curvature. Their distribution was that of the arteries, and on holding the specimen up to the light when it was first removed each tubercle could be seen perched upon an arterial twig.

Case 2, aged 1 year and 11 months, was admitted into hospital for

whooping-cough and bronchitis and died a few weeks later. Post mortem a caseous gland had ruptured into the right bronchus and had produced acute caseous broncho-pneumonia, with softening and cavity formation. There was general tuberculosis. Many ulcers were found throughout the small intestine. At the middle of the anterior wall of the stomach, about half way between the cardia and pylorus, was a small tuberculous ulcer, stellate in appearance and surrounded by a slightly raised and rolled edge. It could not be detected from the peritoneal surface.

Case 3 was admitted into hospital collapsed, and in this case, too, there was a caseous gland, which had ruptured into the right bronchus, and acute pulmonary tubercle had resulted, the whole lung being cheesy and softening to form large cavities. There was general tuberculosis also. In the small intestine, from the jejunum downwards, were many small ulcers, in the large intestine only a few. Near the greater curvature of the stomach, and midway between the cardia and pylorus, were two small ulcers, with flat, slightly raised edges, the larger measuring only 4 mm. in its greatest diameter, and being plainly situated on a vessel. The peritoneal surface was unaffected.

A Case of Symmetrical Alopecia Areata Neurotica accompanied by a Bullous Eruption on the Face was shown by Mr. W. GIFFORD NASH (Bedford). The history of the patient, a girl, aged 14 years, was that on November the 7th a lock of hair along the course of the right supra-orbital nerve fell out, and on November the 11th blister-like spots began to appear on the face. Two years previously she had suffered from similar spots on her face and hands. The medical man who attended the child during the first attack stated that "the eruption resembled pemphigus. It would appear in a few hours as vesicles, then in a few hours these scabbed over, fell off, and left a brownish stain." In the attack which Mr. Nash watched the eruption followed much the same course. The distribution of these bullæ was often symmetrical, within a day or two appearing over the eyes, on the cheeks, or sides of the nose, or in the middle line of the forehead or chin. The first patch of hair to fall out was along the course of the right supra-orbital nerve. Ten days later a similar bald patch suddenly appeared on the left side. For a few hours before a patch of hair fell out a burning sensation was felt over the area affected. This was generally perceived at night, and when the hair was brushed next morning the lock of hair fell out. The skin of the affected patches looked smooth, white, and shiny, and was quite free from scurf. A few club-shaped stumps were found around the edges of the patches, and some of the long hairs adjacent were easily detached. Sensation in the bald areas was very defective. The stumps exactly answered the description of those found in alopecia areata. In January, 1903, the patient had measles, but this had no apparent effect on the disease. During the following two or three months there were fresh patches of alopecia, the hair falling out over the occipital nerves and also a second time over the supra-orbitals. Symmetrical lesions also appeared on the face. The attacks appeared to be caused by the excitement of a children's party or the worry of lessons. The same effect was noticed during the first attack, when it was found necessary to cut off the excitement of juvenile parties. The sudden appearance of the baldness over the course of the cranial nerves and its symmetrical distribution suggested a trophic influence, and Mr. Nash was inclined to think that the cause was entirely central and produced by anxiety and excitement.

The bullous eruption Mr. Nash considered to be of the nature of pemphigus, and would be called pemphigus hystericus.

Two Cases of Renal Calculus in Children under 10 years were shown by Mr. W. GIFFORD NASH (Bedford).

CASE 1.—A boy, aged 8 years, was admitted into the Bedford County Hospital in May, 1905, with a history of abdominal pain and frequency of micturition since an early age. The left kidney could be distinctly felt. The urine was acid and contained pus, but no crystals were found. Radiography gave a negative result. The left kidney was exposed by a lumbar incision, and a stone was felt in its pelvis. The cortex was incised and a stone weighing 30 grains was removed. Seven small calculi were washed out of the kidney. The child made a good recovery.

CASE 2.—A boy, aged 4 years, was admitted into the Bedford County Hospital in October, 1905, with an indefinite history of renal calculus. For two years he had occasionally passed blood in his urine, and complained of feeling cold in his belly. At times he cried at night and screwed his legs about. The urine contained a trace of albumin, but no pus or crystals. There were no other symptoms of stone in his kidney, no frequency of micturition, no attacks of vomiting, no swelling, and no renal tenderness. Three skiagraphs were taken, and in each in the region of the left kidney was a very distinct shadow. The kidney was first exposed and then brought out of the lumbar incision. Some hardness in the renal pelvis was felt, and puncture with a needle showed this to be a stone. The stone, which was felt lying in the renal pelvis, was seized with a pair of forceps, and delivered with some difficulty, owing to its peculiar flat shape. Then followed a continual welling up of venous blood from the kidney. Attempts were made to arrest this by ligature of some vessels which could be seen bleeding near the hilum of the kidney, by suturing the incision in the cortex, and by gauze packing, but without materially lessening the flow of blood. The child was rapidly becoming exhausted from the loss of blood, so the kidney was removed. The vessels and ureter were ligatured and the kidney removed as far from the ligature as possible. Consequently most of the pelvis of the kidney was left behind. The stone removed consisted of uric acid and weighed 25 grains. It was a flat-shaped stone with a sharp edge. Recovery was retarded by some suppuration, but the ultimate result was good, the child passing about 20 oz. of urine daily when he left the hospital.

A Case of Parenchymatous Goitre in a girl, aged 6 years, was shown by Dr. A. ERNEST JONES. Swelling in the neck came on gradually six months ago. The child suffered from a central tumour, with bilateral extensions the size of a small tangerine orange, moderately soft in consistence, and of uniform feel. There was movement on deglutition. Its situation was rather higher than that usual with thyroid tumours. No signs of Graves' syndrome were present.

A Case of Scurvy in a slightly rickety infant, aged 10 months, was shown by Dr. GEORGE CARPENTER. The infant was a trifle anæmic, with hæmorrhagic gingivitis, subperiosteal hæmorrhage of the left tibia, and hæmaturia. The urine contained blood-casts, but was free from other casts. She had been fed on Allenbury's and other patent foods, together with milk.

The following gentlemen took part in the discussion of the papers and

cases: Dr. C. W. Chapman, Mr. Tubby, Mr. George Pernet, Dr. Fredk. Taylor, Mr. Douglas Drew, Dr. Theodore Fisher, Dr. Milner Burgess, Dr. Porter Parkinson, and Dr. G. A. Sutherland.

Editorial.

UNDER-FED CHILDREN.

EVERYONE is agreed that not only is it a cruel proceeding to send children to school hungry, but it is exceedingly harmful to their minds and bodies. Their attenuated little frames are a prey to disease germs, and their ill-nourished brains are incapable of storing up that knowledge and training which are so necessary to the making of good citizens. But there is not unanimity of opinion as to the proper remedy that should be applied. The House of Commons recently gave a second reading to a Bill whereby the duty of providing meals for hungry school children is thrown upon the local authority. It is, however, a serious thing to lessen parental responsibility and to encourage the masses to look to the State for free food and free clothing for their offspring. The State is a high-sounding title, and suggests unlimited resources and boundless wealth—in fact, omnipotence—but after all the State is only a collection of human units like ourselves, the bulk of them being unproductive, and it possesses neither more power nor more money than we all hold in common.

Bradlaugh, a firm friend of the working man, used to say, “I will be no party to making backbones for men,” and that should be a fundamental principle in all legislative enactments which aim at ameliorating the condition of the masses. That there is physical degeneracy in our midst there can be no question; but there is also a widespread mental rot which feels no shame in accepting gratuities or in clamouring for them. It is not of such stuff that a nation becomes great or maintains its prestige. A good tonic, in the shape of punishment to parents for sending children to school hungry, would in many instances promote a more healthy state of mind and

activity of body to provide the needful. In those cases wherein real misfortune was the cause the functions of the relieving officer rather than those of the magistrate could well be brought into play.

Abstracts from Current Literature.

Medicine.

Testevin's reaction in children's diseases ('*Gazz. Med. Ital.*,' 1905, p. 305).—**E. Modena** has studied this in various forms of disease in the Children's Clinic at Pavia. The reaction is described as follows: Ether is poured into a test-tube containing fresh urine from which the coagulable albumen has been removed by the ordinary process (acetic acid, boiling, filtration): the quantity of ether to be used is about one third that of the urine, and the test-tube must be cooled first: the orifice is then closed with the finger, the tube well shaken and left to stand. If there are albuminoid substances in the urine, a kind of fat emulsion appears on the sides of the tube, which soon solidifies and forms on the top of the urine a kind of plug-like collodion. The consistence of this plug is often considerable, so as to allow the tube to be turned over without the liquid escaping; the consistence diminishes if the tube is left uncovered or placed in the warm, while in opposite conditions it may last for weeks. The coagulum only forms well in an acid medium, and the same urine that furnished a thick and resistant coagulum after the addition of acetic acid only gives a pasty and scanty emulsion if the ether is poured in without previous acidulation. The reaction may fail altogether if the urine is alkalimised with a few drops of soda. The formation of a coagulum is observed in albuminous urine, but is less marked than after the elimination of serum and globulin. The principal diseases in which the coagulum is noticed are: Syphilis at its different periods, diphtheria, typhoid, malaria, tuberculosis, meningitis, gastro-intestinal disturbances, and nephritis. The coagulum is more voluminous and dense in the acute stage of these diseases and in grave cases, but the phenomenon persists in a lesser degree some time after the commencement of recovery. To insure a fixed method of clinical research 5 c.c. of urine were used in every case and the height of the coagulum measured, and among the results noticed were that in diphtheria the height was never very marked; it became higher in scarlatina, and attained its maximum in measles. Of 56 cases examined the following conclusions were arrived at: Testevin's reaction is a phenomenon which occurs in definite and fixed conditions; (2) probably the body giving rise to it is an albuminoid of the peptone class; (3) the reaction is wanting in healthy subjects, but is almost constant in the sick, in whom it is very variable owing to circumstances as yet not well ascertained; the greatest increase, however, is observed in relation with thermic increase; (4) hitherto it has not been possible to attribute any striking diagnostic or prognostic value to this reaction, but it would be interesting to ascertain its place in biological chemistry and the laws which govern it.

VINCENT DICKINSON.

Physiological hiccough in infants (*Lyon Méd.*, 1905, No. 35, p. 333).—**V. Thévenet** contributes an interesting article on hiccough, which is so frequent but by no means constant in infants otherwise healthy. The author agrees in the main with the investigations of R. Trèves, namely that hiccough is the sign of a satisfied stomach painlessly digesting a copious meal; it ceases on the occurrence of illness and only reappears on recovery; it is particularly frequent in the first three months, at least in breast-fed infants, and diminishes progressively until the end of the first year, when it is rather rare; it is less frequent in bottle-fed babies and relatively rarer in the first three months; it bears a distinct relation to the work of digestion and is thus never seen on waking—before the first meal; if a fresh feed is given to an infant with hiccough, it ceases; occasionally a perfectly healthy infant has hiccough rarely, or never, but it is certainly hardly ever seen among sick children and is almost unknown in hospital crèches; at the onset of digestive troubles hiccough diminishes and soon disappears; it is particularly common among hungry infants who put on weight rapidly; in breast-fed infants it occurs soon after a feed, but in the bottle-fed from a half to three hours after; hiccough follows vomiting sometimes and regurgitation frequently, it never precedes them; an infant that gets hiccough will never eject the stomach contents before the next meal. The additional conclusions arrived at by the author are: Hiccough results from a reflex which has the gastric mucous membrane as its point of origin and must be regarded as a sign of relative overloading of the stomach of a peculiar susceptibility. Hiccough may immediately follow vomiting or regurgitation, sometimes even accompany them in the first efforts, but when once it is well established it is a guarantee against the return of these phenomena before the next feed; it may be considered therefore as a kind of abortive regurgitation, indicating that the stomach, no longer happening to empty itself above, decides upon pyloric evacuation, of which the hiccough is the signal and, perhaps, the auxiliary. In this sense, after severe digestive troubles, hiccough is a sign that the stomach is returning to its normal function. On the contrary, it tends to disappear in all pathological conditions which make an overcharged stomach impossible (anorexia, inanition, copious vomiting, or free regurgitation). It is for this reason that it is observed less commonly in bottle-fed infants, especially in the first three months, when their digestion is almost always precarious. This explains why hiccough has always been regarded as “a good sign,” indicating the well-being of the infant. As it happens frequently in breast-fed infants, it furnishes a presumption in favour of the nurse. Nevertheless, the value of hiccough as a favourable sign is only relative. Its precise significance is of the same order but one degree less as that of regurgitation, which is also equally observable among infants who are apparently thriving, but whose feeds are really too abundant or badly regulated. It indicates in direct proportion to its frequency that the quantity imbibed, although comfortably digested, is fully sufficient, and that the limit of the digestive capacity of the stomach is reached, or nearly so.

VINCENT DICKINSON.

The diagnostic, prognostic, and therapeutic value of lumbar puncture in new-born children (*La Presse Médicale*, August, 1905, No. 65, p. 513).—**L. Devraigne** having observed the frequent failure of treatment in infants born apparently dead after forceps extraction, etc., and in whom an autopsy showed usually an intercranial meningeal hæmorrhage with hæmatorachis, resorted to lumbar puncture to confirm the diagnosis and to prevent

futile attempts at insufflation, etc. He found that when the liquid removed was colourless a favourable issue resulted, and when the liquid was coloured with blood in some cases the infant recovered after repeated punctures. He made use of a simple Pravaz needle furnished with a silver or platinum wire, inserting it perpendicularly or slightly upwards in the centre of a line drawn between the iliac crests, which in the new-born child crosses the fourth lumbar space. The length of the needle should be from 10 to 15 millimetres. He advises the abstraction of not more than 10 c.c.; usually 3 c.c. to 6 c.c. suffice. Thus lumbar puncture confirms the diagnosis of meningeal hæmorrhage in these cases; it distinguishes them from cases of subdural hæmorrhage, in which, as in the adult, puncture is negative. In cases where there is cyanosis, convulsions, contractions, and temperature an amelioration after puncture justifies a hopeful prognosis, and two or three extractions of 3 c.c. to 10 c.c. of cerebro-spinal fluid may effect a cure either by temporarily relieving the pressure on the nerve-centres, or by subtracting part of the blood effused into the subarachnoid space, where it may perhaps act as a toxic principle. Lumbar puncture, done aseptically, is easy of performance and without danger, and should take an important and useful place in the treatment of meningeal hæmorrhage in new-born children. *Vide* Editorial, *BRITISH JOURNAL OF CHILDREN'S DISEASES*, December, 1905, p. 561.

VINCENT DICKINSON.

Congenital hypertrophic stenosis of pylorus in infants ('*La Presse Médicale*,' August, 1905, p. 536).—**Sarvonnat**, in his 'Thesis' (Lyons, 1905), has collected 115 cases, including one hitherto unpublished by Weil and Nové-Jusserand, with cure following gastro-entero-anastomosis. These strictures display all the classic signs of pyloric stricture, but present some peculiarities: vomiting is early, insistent, irregular, the presence of bile exceptional; sometimes it takes place with considerable force. The stomach is more or less dilated and always presents peristaltic movements. Infrequency of defæcation and micturition is a symptom always very marked and sometimes pathognomonic. The presence of a pyloric tumour is important but inconstant. Diagnosis must be made from the various digestive disturbances of infancy, and especially from the pyloric spasm of Weil and Péhu. Inanition is followed by wasting, hypothermia, and usually death, but the author wonders if certain of these strictures may not be the starting-point of accidents arising later and even in adult life. Anatomically these symptoms correspond to hypertrophy of the pyloric sphincter, which sometimes becomes three times its normal size and forms a true muscular tumour. The author discusses at length the different theories relative to this lesion and particularly that of Pfaundler, and concludes that it consists of a malformation of the pyloric sphincter. Medical treatment has perhaps given certain results, but the author is strongly in favour of surgical intervention, the results of which he reviews. The statistics he gives do not lend themselves to analysis, but he gives the preference to gastro-entero-anastomosis as alone applicable to all cases. This interesting monograph is the first in France which goes thoroughly into the subject, and with its copious bibliography will certainly demand the attention of all specialists in children's diseases.

VINCENT DICKINSON.

Accidental hanging ('*Australasian Medical Gazette*,' 1905, vol. xxiv, p. 255).—**C. MacLaurin** reports a case in a boy, aged 11 years, fortunately not fatal. He was found hanging to the rail of a flight of steps by a strap

round his neck. The face was black, tongue protruded, and eyes started. When seen by the doctor some three minutes later he was apparently dead. The face was pallid and bluish, reflexes absent, breathing had stopped, and the pulse was imperceptible. The pupils were pin-point, muscles flaccid, petechiæ on both eyelids, and considerable hæmorrhage into the conjunctiva of the right eye. After several minutes of artificial respiration, friction of limbs, and administration of oxygen he made inspiratory efforts, which soon passed into Cheyne-Stokes breathing. The pulse was then 160 and very small. During the acme of the breathing opisthotonos, violent contractions of all the muscles, dilated pupils, engorged face, and spasm of the larynx with stridor were present, all subsiding as the breathing became shallow. At the end of three hours breathing was regular and artificial respiration was entirely discontinued. He vomited twelve hours after the injury, became conscious in eighteen hours, restless in twenty-four hours, and then delirious for twenty-four hours. After that he had delusions. Sleep did not take place until 80 grains of bromide had been given. It lasted ten hours, and he woke up weak but mentally well. There was a little headache throughout. The condition was no doubt mainly due to cerebral engorgement and rupture of minute vesicles in the meninges and brain substance, arising from pressure on the jugular veins. In cerebral anæmia due to carotid obstruction instant unconsciousness and rapid death, with little or no struggling, ensue.

EDMUND CAUTLEY.

Appendicitis in children ('*Archiv. of Pediatrics*, 1905, vol. xxii, p. 329). —**J. H. Hess** points out that diagnosis is difficult in the very young because of their inability to describe their symptoms and the difficulties of examination, due to crying, restlessness, and general rigidity. The first realisation of serious trouble may be general or local peritonitis. Pain, hyperæsthesia and rigidity, when associated with vomiting and constipation, are often sufficient for diagnosis in older children. The pain may be indicated by fitful crying only in the very young. "Belly-ache" and a curled-up lateral decubitus may be present. Sometimes the pain is referred to the right testicle or neck of the bladder. At first it may be localised at McBurney's point, but soon becomes diffuse, radiating from the umbilicus to the pelvis. In rare instances perforation may precede pain. Tenderness on pressure is of little value. Rigidity of the right rectus is present early, but is difficult to elicit because of the child's tendency to general abdominal rigidity under examination. Nausea and vomiting are usually present shortly after the onset of pain. Chill is rare. The pulse corresponds with the temperature, becoming rapid, weak, soft, and irregular with peritonitis. The temperature is unreliable. In the worst cases there may be little fever and there may be a distinct fall after perforation and the onset of peritonitis. Constipation is the rule. Diarrhœa is occasional, and, when present, generally indicates a less urgent type. Tympanites develops late. Flexion of the thigh and an unconscious tendency to place the hands in the region of the appendix are sometimes present, so too increased frequency of micturition. Rectal examination is of great value in older children for localising the point of greatest pain, and in later stages for locating abscess. After a few days a lump may be felt in the iliac fossa. The leucocytic count is of less value than in adults, for it may in children normally reach 20,000 or more. A decided leucopenia is of evil omen in the presence of peritoneal infection. In a differential diagnosis numerous conditions must be borne in mind, namely, colic, indigestion, intussusception, acute intestinal obstruction,

Pott's disease, renal colic, biliary colic, perityphlitic or perinephritic abscess, pneumonia and pleurisy, tuberculous peritonitis, incipient inguinal hernia, typhoid fever, undescended testicle. Cases have been reported at 6 weeks of age. In children the affection may be undiagnosed until peritonitis is set up.

EDMUND CAUTLEY.

Albuminuria in apparently healthy children (*'Archiv. of Pediatrics,'* 1905, vol. xxii, p. 444).—**W. A. Edwards** discusses the above question and its relation to renal and cardio-vascular changes. Palpation of a floating kidney in the young is sometimes followed by albuminuria. Hence in all cases the presence of a movable kidney must be excluded. It is not uncommon in children, much more frequent in females, and has been reported at 18 months of age (Theodore Fisher). In anæmic and feeble children the albuminuria may be due to simple transudation of altered blood. If there is definite renal change, cardio-vascular alterations are soon recognisable, and may even precede the onset of albuminuria. In all cases it is important to determine the variety of albumin present, and the presence or absence of mucin, nucleo-albumin, albumoses, or peptones.

EDMUND CAUTLEY.

Erythema nodosum (*'Arch. of Pediat.,'* August, 1905, p. 589).—**F. S. Meara** defines erythema nodosum as an infectious disease, closely allied to the exanthemata. It is rare in infants, common in children, and reaches its maximum incidence about the tenth year. After early childhood girls are more liable than boys, while in adults it is almost confined to females. It is most common in spring and autumn. Its existing cause is unknown. It is slightly contagious. Incubation period lasts eight to ten days. Invasion usually lasts three days, sometimes a week, and is indicated by malaise, anorexia, or slight gastric disturbance; at times irregular fever, prostration, and more severe gastric symptoms; occasionally suggests typhoid fever or even meningitis. The eruption occurs in crops, each lasting a few days, and continues for two or three weeks, sometimes as many months. Joint pains are common. Desquamation may occur over a node. Complications are rare. Vesication, ulceration, and even gangrene of the nodes has been reported. The affection has been regarded as a variety of E. multiforme, but is now considered an independent morbid entity. Schlesinger recognises a rheumatic and a non-rheumatic variety. The latter is often associated with E. multiforme and is less typical in its eruption and course. It is strikingly like purpura in many of its features, and it has been noted in the course of almost all infectious diseases. The lesion is essentially an excoriation into the skin, an angioneurosis with secondary inflammation. It is due to a toxin or to bacterial emboli. In many cases salicylates appear to be of no effect in the course of the disease.

EDMUND CAUTLEY.

Congenital icterus with chronic enlargement of the spleen (*'Deutsch. Arch. f. klin. Med.,'* vol. lxxxii, pts. 5, 6). **H. v. Krannhals** describes three cases of this peculiar affection. The symptoms were the same in all the three cases—icterus, enlargement of the spleen; the stool was never acholic; the urine never contained bile-pigment, blood, or hæmoglobin, but always urobilin. The blood-serum was yellow; in one case it contained also bile-pigments. The red blood-corpuscles were reduced in number, and there was pronounced polychromatophilia. The patients do not as a rule feel ill. Regarding the pathology of the disease, the author agrees with Bettmann, who assumes an abnormally increased tendency of

the hæmoglobin to be dissolved by the serum, and regards the enlargement of the spleen as a "spodogenous" tumour. The disease seems to be of rarer occurrence in Germany than in France, and the author could find only twenty-six cases recorded in all.

D. O'C. FINIGAN.

Paroxysmal hæmoglobinuria and hæmaturia in childhood ('*Med. Klin.*,' 1905, No. 45).—**L. Langstein** reports two cases of paroxysmal hæmoglobinuria, one in a boy, aged 4 years, the other in a girl, aged 3 years, in both brought on by exposure to cold. After a very minute enumeration of the typical symptoms, he describes the urine as being perfectly clear, of a rich burgundy colour, spectroscopically defined as methæmoglobin. The sediment contained no kidney-elements but great quantities of oxalates. Addition of acetic acid produced a very copious precipitate, which was further increased by boiling. Ehrlich's diazo-reaction was very positive. In one case he examined the blood and found the serum to contain a quantity of hæmoglobin in solution. He was able in this same case to confirm the experiments of Donath and Landsteiner, and expresses his belief in the correctness of their proposition that the serum of "hæmoglobinurics" contains a substance able to act on its own as well as on alien blood-corpuscles. This lysin cannot be demonstrated directly by bringing the serum into contact with the corpuscles of its own or foreign blood, but easily when its peculiar relation to changes of temperature is taken into consideration. The third case he considers to be one of "renal hæmophilia," as originally pointed out by Senator.

D. O'C. FINIGAN.

Family tabes dorsalis ('*Lancet*,' September 9, 1905).—**E. F. Trevelyan** records an interesting case in which husband, wife, and daughter were all affected with this disease. He gives the family history as follows, twelve pregnancies having occurred as the result of the union of the parents: (1) A girl, now aged 43 years (tabetic); married. (2) A boy, died, aged 15 years, from rheumatic fever and cardiac disease. (3) A girl, now aged 38 years, quite well; married: ten children (nine living), three miscarriages. (4) A girl, died, aged 14 months. (5) A girl, died, aged 23 years, from puerperal fever. She also had rheumatism and heart-disease. (The first symptoms of tabes appeared in the wife about this time.) (6) A girl, died, aged 4½ years, from inflammation of the brain. (7) A girl, died, aged 15 months. (8) A miscarriage. (9) A miscarriage (probably a macerated foetus). (10) Born dead at term. (11) A girl, now aged 26 years, unmarried. She has had rheumatism and heart disease. (12) A girl, died, aged 14 months. The last half of that family was strikingly and curiously worse than the first half. No satisfactory evidence of past syphilis was forthcoming in the tabetic parents. The history of the first daughter's family is important. There have been six pregnancies: (1) A boy, died, aged 5 years, probably of tuberculous meningitis. (2) A girl, aged 14 years, alive and well. (3) A miscarriage. (4) A girl, aged 11 years, alive and well. (5) A girl, aged 8 years, said to have had snuffles in infancy. (6) A girl, aged 4 years, alive and well. Neither the daughter nor her husband show signs of acquired syphilis, while the daughter may be said to show no evidence of congenital syphilis except that her upper teeth have decayed away. The writer concludes that the tabetic couple almost certainly had syphilis, and that there is no evidence to show the existence of acquired syphilis in the tabetic daughter and her husband.

JAMES BURNET (Edinburgh).

Gastric lavage in congenital hypertrophic stenosis of the pylorus ('*Lancet*,' September 16, 1905).—A. J. Blaxlaur reports a case which was under the care of Dr. Garrod. The child was a male, aged 4 months. He was brought to hospital suffering from vomiting, constipation, and wasting. From birth he was artificially, but very badly, fed. The vomiting occurred at moderately long intervals and was of a very forcible character. Large quantities—two or three feeds—were vomited at a time. There was considerable wasting, with shrunken skin and anxious expression. Tongue was clean. The abdomen showed well-marked peristalsis in the area of the stomach, passing in slow waves from left to right and dividing the stomach into two or three portions, each about the size of a small Tangerine orange. On deep palpation a hard, elongated lump of about half the size of the terminal phalanx of the little finger could be felt midway between the umbilicus and the right costal margin. Treatment consisted entirely in careful dieting and gastric lavage. The feeding at first consisted entirely of humanised milk, 3 oz. being given every two hours, and this was increased in eleven days to $3\frac{1}{2}$ oz., and nine days later to 4 oz. For the first four days one or two big vomits occurred daily, and three days after admission the stomach was washed out, and this procedure was continued twice daily. No vomiting now occurred for eleven days, and after that only two vomits a week on an average. At the end of about six weeks the stomach was washed out only once a day, and then the vomiting increased. Peptonised milk was accordingly given, 4 oz. with ten drops of cream, alternating with the humanised milk. This had the desired effect of checking the vomiting. Seven weeks later the lavage was only carried out twice a week and the child kept on humanised milk alone. At the end of another month 3 oz. of cow's milk with 1 oz. of barley-water and ten drops of cream were substituted, and the feeds given every two hours. In ten days after this mode of feeding was commenced the patient left the hospital, apparently quite well. During the course of treatment the pylorus became increasingly difficult to palpate, partly owing to increased thickness of the abdominal wall. The peristalsis also became less marked, and was practically imperceptible for the last fortnight before the patient left the hospital. On admission he weighed 8 lbs, and on leaving his weight was $12\frac{1}{2}$ lbs. When last seen he was being fed on cow's milk, diluted, was thriving, and weighed $13\frac{1}{2}$ lbs. JAMES BURNET (Edinburgh).

Feeble-mindedness in children ('*Med. Chronicle*,' vols. XLII (pp. 261 and 339) and XLIII (p. 1), August, September, and October, 1905).—C. Paget Lapse publishes as a monograph of seventy pages on this subject a thesis which was accepted with commendation by the Victoria University. The reader is referred to the original—which is well worthy of perusal—as the article is not suitable for abstracting purposes, and only a few points will be here mentioned. It is very regrettable to see the subject of heredity treated exactly as it would have been before Darwin lived. Thus we find quoted such ludicrous superstitions as that transmitted neuropathic taint is manifested through its action on the germinal plasma, and that gout, alcoholism, and tuberculosis have a similar action. The main part of the essay is devoted to speech defects in the feeble-minded, and these are analysed in elaborate detail. In the children showing these defects "th" was the sound most often mispronounced, being so in 75 per cent. of the cases. "R" is the sound next most often mistaken, then "y," and then "s." Vowels are always better pronounced than consonants. Stammering was

not found to be commoner than in normal children. Colour-blindness was not found in any instance, though inability to name colours correctly existed in over a quarter of the children.

A. ERNEST JONES.

Intermittent hemiplegia of albuminuric origin in a child (*Congrès Français des Alienistes et Neurologistes, Rennes, August 4, 1905*: 'Arch. de Neurol.,' September, 1905, vol. xx, p. 203).—**Manheimer-Gommes** describes the case of a girl, aged 8 years, who had suffered from scarlatina when three years old. After this she was well for five years and then suffered on two occasions from a left-arm monoplegia. This recovered well and both times was accompanied by albuminuria, which also got well. Between the attacks was an interval of a few months.

A. ERNEST JONES.

Pancreatitis complicating mumps ('*Journ. de Méd. de Bordeaux*,' October 29, 1905).—**Auche**.—The first case was a lad, aged 12 years, who woke during the third night of his illness complaining of pain in the epigastrium of a continuous nature, with exacerbations; in half an hour vomiting occurred, at first of food, later of bile. The pain was confined to the epigastrium, midway between the umbilicus and xiphoid cartilage, extending as far as the left costal arch. Owing to the tenderness it was impossible to ascertain if there was any intra-abdominal swelling. During the ensuing day the pain was slightly less, the exacerbations were less frequent. Vomiting occurred four or five times, but only on taking fluids. The bowels acted once; the motion looked as if it did not contain fat. Next day, the fifth since the parotid glands were swollen, the pain was still less, and less frequent, but it was sufficiently severe to prevent deep palpation; a motion passed was normal, as was also the urine. Bilious vomiting continued. Next day, the third since the onset of abdominal symptoms, vomiting ceased, and liquid food was well borne. On the fourth day no swelling could be felt on deep palpation. The temperature had fallen from 38.9° C. to 36.8° C. On the fifth day the patient seemed perfectly recovered. The second case was a boy, aged 9 years. On the fifth day of an attack of mumps, suddenly epigastric pain and vomiting supervened. Next day pain and vomiting continued. When these symptoms had lasted three days the patient was seen for the first time; the pain was limited to the left side of the epigastrium, vomiting had occurred once during the day, the liver could be felt below the costal arch. Calomel was ordered. The patient was only seen once.

T. P. BEDDOES.

The diagnosis and treatment of pneumonia in children ('*Amer. Journ. of Obstetrics and Diseases of Women and Children*,' October, 1905).—**George N. Acker** read a paper on this subject, in which he pointed out that in a child suffering from bronchitis, when cyanosis and a respiratory grunt are observed, broncho-pneumonia is probably present; that, if the child cannot be submitted to an examination, the diagnosis must rest upon the temperature, respiration, and general appearance. No constant micro-organism is present, but in 50 per cent. the pneumococcus is found, whereas in other cases streptococci, staphylococci, and the bacillus of influenza exist. Acker considers lobar pneumonia of frequent occurrence in infants. Out of fifteen cases seven were between one and two years, four were eight years old. The temperature curve is not so definite as in adults, cough is not prominent, and expectoration is seldom seen. The child often suffers from typhoidal symptoms. The onset of the illness is sudden, and is ushered in with gastro-enteric and nervous symptoms. The second pulmonary sound is

often accentuated, and in many cases the axillary region is the only situation where physical signs are obtained. Acker recommends a systematic examination of the blood for (1) the pneumococcus, (2) leucocytosis. In the treatment of such cases the author lays great stress upon ventilation and diet, he discountenances the use of a pneumonia-jacket, and recommends the administration of large and repeated doses of bicarbonate of sodium, in order to neutralise the acids produced by the pneumococcus.

KENNETH KELLIE.

Pathology.

Leucocytosis in whooping-cough (*Arch. of Pediat.*, August, 1905, p. 595).—**C. G. Grulee** and **D. B. Phemister** examined the blood in fifteen cases of whooping-cough and found a leucocytosis usually present in all stages. As a rule the number of white cells increases with increase in the frequency of the paroxysms and decreases as they become less frequent and severe. The mononuclear cells are relatively increased in all stages, especially so in the active stage. In the paroxysmal stage the leucocytosis was one mainly of the large lymphocytes. In one case in the catarrhal stage, and in similar ones reported by Wanstall, the small mononuclears were in excess.

EDMUND CAUTLEY.

Primary tuberculous meningitis (*Pediatrics*, 1905, vol. xvii, p. 623).—**H. W. Cheney** reports a case in a boy, aged 3 years, of healthy parentage, but with a family history of tuberculosis. He had had no previous illness. Persistent vomiting was the most marked early symptom. A diagnosis could not be positively made until the fifteenth day, and death resulted on the twenty-fourth day. No tubercle bacilli were found in the fluid obtained by lumbar puncture at first, but a guinea-pig inoculated with it died of tuberculosis in seven weeks. Tubercle bacilli were found in the cerebro-spinal fluid on the twenty-first day. The brain presented characteristic changes post mortem. The mesenteric and peribronchial glands were normal microscopically. No other evidence of tuberculosis was found in the body. It is not definitely stated, however, that the naso-pharynx and middle ears were examined for evidence of tuberculous infection.

EDMUND CAUTLEY.

Leucocytic counts in broncho-pneumonia, pneumonia, and empyema (*Arch. of Pediat.*, 1905, p. 735).—**H. Heiman** drew the following conclusions from nineteen cases of broncho-pneumonia, twenty-four of lobar pneumonia, and seven of empyema. Leucocytosis is well marked in broncho-pneumonia, is independent of the amount of lung involved, and bears no relation to the fever. As a rule the number falls with disappearance of pulmonary signs unless there is a complication or fatal issue. In pneumonia the leucocytosis is about the same in degree, but it increases with the amount of lung involved. It does not depend on the temperature. It usually reaches a maximum before the crisis. The onset of empyema is indicated by a high leucocytosis. Hence, a sharp rise following a fall in pneumonia may be valuable as a diagnostic aid indicating empyema.

EDMUND CAUTLEY.

Contribution to the knowledge of the meningococcus intracellularis (*Jahrb. f. Kinderheilk.*, vol. Lxi).—**B. Weyl** performed lumbar puncture four times on a boy, aged 3 years, suffering from undoubted epidemic cerebro-spinal meningitis—three times during life (on the 17th,

21st, and 30th day of the disease), and once about half an hour post mortem. Bacteriological examination of the fluid, as of the cultures, revealed in every instance the same micro-organism, namely diplococci, characterised by their morphological and biological appearances as meningococci. In their reaction towards Gram's method they varied at different times, whether obtained from the fluid or from cultures—a confirmation of Heubner's statements. Weyl also states that a once-obtained Gram-negative reaction did not remain as such after further sub-cultivation of the meningococci in question.

D. O'C. FINIGAN.

Parathyroidin in eclampsia (*Gaz. Degli Ospedali*, No. 47, 1905).—Experiments show that the parathyroids secrete an antitoxin. Dogs deprived of the glands soon die with symptoms of tetany, except in cases where there are supernumerary parathyroids. Vassale considers both tetany and eclampsia are due to parathyroid insufficiency, from either absence of the glands or failure of functional activity. He has prepared a fluid extract from the parathyroid of cattle, and administered it in half-drachm doses four times a day. In children it has been of service in tetany, epilepsy, and laryngismus stridulus. The tachycardia of Graves's disease has been relieved by it.

T. P. BEDDOES.

Otology, Laryngology and Rhinology.

Papilloma of the larynx in children (*Med. Record*, September 2, 1905).—**T. Payson Clark**, of Boston, reports fourteen cases of this condition. He points out that this is a very serious condition in children. The best method of treatment in all cases is tracheotomy and non-interference with the growth. If the condition persists, an attempt to remove the growth may be made when the child is older.

P. LOCKHART MUMMERY.

A case of primary tuberculosis of the pharyngeal tonsil, associated with tuberculous cervical glands (*Lancet*, September 16, 1905, p. 817).—**F. Ivens** made a microscopical examination of thirty-five cases of adenoids removed by operation. One specimen was removed from a boy, aged 3 years, who suffered from aural discharge and enlarged cervical glands, one of which was breaking down: typical tubercles, showing giant cells and early central caseation, were found distributed through the tissue of the adenoid.

HAROLD BARWELL.

Inflammation of the pharyngeal tonsil (*Lancet*, October 14, 1905).—**P. McBride** remarks that, although simple catarrhal inflammation of the pharyngeal tonsil during a cold is common enough, a form of inflammation of this structure, similar to follicular tonsillitis, has escaped general attention. He records the case of a schoolboy who had complained of sore throat but, as nothing abnormal was to be observed in the fauces, the trouble was made light of. When seen by the author, however, the boy looked ill and had a temperature of 101° F.; on examination of the naso-pharynx, white spots were seen on the pharyngeal tonsil exactly resembling those of follicular tonsillitis. Although little mentioned in the text-books, this condition is perhaps commoner than is generally supposed; for examination of the naso-pharynx, never easy without special practice, is made peculiarly difficult by the irritability accompanying such cases.

HAROLD BARWELL.

Ophthalmology.

"Alypin" ('*Ophthalmoscope*, November, 1905).—**Sydney Stephenson**, in the '*Ophthalmoscope*,' describes a new local anæsthetic (for use in ophthalmic surgery), alypin, a white crystalline neutral powder, very soluble in water. It is a synthetic compound and a glycerine derivative. It is not precipitated by the alkaline fluids of the human body, and therefore presumably penetrates either conjunctiva or cornea quickly. It is unimpaired by boiling as long as ten minutes, and its anæsthetic properties are in no way inferior to cocaine. A 1 per cent. solution of alypin produced anæsthesia of the cornea in the rabbit in from fifty to sixty seconds. The lethal dose in cats and dogs is double that of cocaine. Stephenson then details his experience with a 2 per cent. watery solution. When dropped into the conjunctiva some patients complain of a little smarting, but comparing this with cocaine solution he finds it less than with the latter drug. There is less blepharospasm with alypin than with cocaine. He finds on an average that both cornea and conjunctiva become insensitive to touch in seventy seconds, and a few seconds later the fixation forceps may be used without causing any pain. That alypin has a vaso-dilator action was manifest from noting that when anæsthesia was induced there was observed flushing of the superficial circum-corneal vessels. This distension of vessels was noted by Stephenson in 90 per cent. of his cases. In no case did he find that alypin caused dilatation of the pupil or had any effect on accommodation or on the condition of the corneal epithelium. The lid retraction so characteristic of cocaine was absent, also tension remained unaltered. Stephenson found himself in agreement with von Sichen, Jacobsohn, and Seeligsohn in regarding alypin as an efficient local anæsthetic, and moreover devoid of any other action if we except slight vaso-dilatation. Stephenson has employed alypin in all eye operations in which cocaine would be applicable with anæsthetic results quite as satisfactory as those of cocaine. Alypin has been recently introduced by the Bayer Company.

G. WINGFIELD ROLL.

Surgery.

Massage in hydrocele in children ('*Gaz. degli Osp. e delle Cliniche*, June, 1905).—**Ugo Betti** reports in his practice the total and permanent re-absorption of exudation in cases of chronic hydrocele after exploratory puncture. The same fact being noted by Laurenti, Burzagli, and Magrassi in cases of pleurisy, the author endeavoured to find the causes of such cures, whether they depend on a process of inflammatory reaction excited by the puncture, or whether the absorption is promoted by the massage-like movements used in carrying out the puncture. To elucidate this, the author treated ten children affected with hydrocele by puncture without mechanical manipulation of any kind or by massage alone, or by puncture combined with massage. He practised daily massage by means of stroking movements, at first superficial, then deep, from below upwards in the scrotum, two minutes at the first sitting and slowly increasing to ten minutes, using the pulp of the fingers, vaseline, or olive oil. Six patients were observed throughout the treatment and the conclusions arrived at were: Both massage and exploratory puncture can independently by spontaneous absorption conduce to the cure of common hydrocele, which in some instances is only obtained by a combination of these two therapeutic measures. Unlike that

of massage, the mode of action of exploratory puncture is obscure and calls for further investigation.

VINCENT DICKINSON.

Bladder calculus in an infant (*'Johns Hopkins Hospital Medical Society,' May 1, 1905*).—**Churchman** showed a case of this condition in a male infant aged 19 months, the first instance at so early an age that had occurred at the Johns Hopkins Hospital. Hæmaturia with strangury and tenesmus were the symptoms. The stone was discovered with a fine sound.

A. ERNEST JONES.

Congenital urethral stricture (*'Johns Hopkins Hospital Bulletin,' July, 1905, vol. xvi, p. 256*).—**John W. Churchman** reports such a case in a boy aged 13 years. The condition is a very rare one. Hæmaturia, ureteral pain, with nausea and vomiting, were the symptoms. They had been present for four days only, and there was no previous history of urinary trouble. An X-ray picture and examination of the urine for tubercle bacilli gave no positive results. The meatus of the urethra was constricted, and there were two other narrowings present, one in the bulbo-membranous portion and one just behind the meatus. Under gradual dilatation all symptoms disappeared.

A. ERNEST JONES.

A case of retained intubation tube treated by gradual dilatation (*'Med. News,' September 16, 1905*).—**Fielding L. Taylor** reports the case of a boy, aged 3 years and 2 months, who was intubed during an attack of diphtheria. Dyspnoea occurred very suddenly, with complete cessation of respiration, and intubation had to be hurriedly performed. A large tube, 6-7, was used. This tube was replaced by a smaller one, 4-5, in forty-eight hours. Two days later this was removed, but had to be replaced. Successive attempts to remove the tube were made, but on each occasion after a varying interval it had to be replaced, and smaller tubes had to be used. After the tube had been out, generally for about six days, dyspnoea commenced, and intubation had to be performed. Gradually dilatation of the larynx by putting in larger tubes was carried out, and after one unsuccessful attempt resulted in getting rid of the tube. A tube was worn in all 160 out of 187 days. The author attributes the condition to the use of too large a tube in the first instance.

P. LOCKHART MUMMERY.

Congenital urethral stricture (*'Med. News,' September 16, 1905*).—**Churchman** reports a case from the Johns Hopkins Hospital of a boy, aged 13 years, with this condition. There was a pin-point opening at the meatus and two narrow openings, one in the bulbo-membranous urethra and one just behind the meatus. All symptoms cleared up after gradual dilatation.

P. LOCKHART MUMMERY.

Successful enterectomy for irreducible intussusception (*'Brit. Med. Journ.,' November 11, 1905*).—**George Heaton**, at a meeting of the Birmingham Branch of the British Medical Association, showed a girl, aged 8 years, from whom he had successfully removed a gangrenous intussusception by enterectomy. The ends of the gut were closed after removal of the gangrenous portion, and a side-to-side anastomosis made between the ileum and ascending colon by single suture. The operation had been done nine months previously.

P. LOCKHART MUMMERY.

Decapsulation of the kidneys for nephritis (*'Arch. of Pediat.,' 1905,*

p. 641).—**E. E. Graham** reports a case in a girl, aged 26 months, and gives brief abstracts of ten other reported cases in children under fourteen years of age, of which only one was under five years of age. Graham's case was secondary to scarlet fever, and had persisted for nine months. Distinct uræmic symptoms were present for forty-eight hours before operation. Eight months later she was free from dropsy, not anæmic, and seemed perfectly well. The remarkable improvement which sometimes follows the operation is mainly due to the relief of kidney tension. A new capsule forms in the course of three or four months. Hence the operation is of little value in chronic interstitial nephritis. Nephritis is bilateral, so it is becoming the practice to operate on both kidneys. Guiteras gives the mortality per cent. of 120 cases as 26 in chronic interstitial, 25 in chronic parenchymatous, and 75 in chronic diffuse nephritis. A. R. Elliott ('*Medicine*, 1904, p. 251) gives the mortality as 47 per cent. of 76 cases, and emphatically condemns the operation. The results are better in children; 5 out of 11 died, one of them from an acute attack after a year's interval. Four were possibly complete cures. Only acute or subacute cases, which are not doing well under medical treatment, are suitable for operation.

EDMUND CAUTLEY.

Intussusception ('*Arch. of Pediat.*, 1905, p. 655).—**J. H. Hess** reports three cases, two in babies under nine months, and gives statistics of 1028 collected cases, with a very extensive bibliography. Intussusception demands early diagnosis and immediate treatment. No food or purgatives should be given. The question of sedatives must rest with the physician. Irrigation may be tried in selected cases, under complete anæsthesia and with preparations for immediate laparotomy in case of failure; also *vide* Editorial, *BRITISH JOURNAL OF CHILDREN'S DISEASES*, November, 1905, p. 513. Hot salt solution or plain water may be used under a pressure of not more than three feet, and allowed to remain in not less than ten minutes. Irrigation is contra-indicated by recurrence after complete or partial reduction; the acute and very severe types of the disease resulting in early destruction of the bowel wall, in the presence of signs of gangrene or ulceration, such as subnormal temperature, profound toxæmia, and other septic symptoms, enteric intussusceptions. Laparotomy should be done at once after failure of irrigation or if it is contra-indicated. Attempt reduction from below upwards. In irreducible cases, resect within the bowel in selected cases. If this is not feasible, resect with end-to-end anastomosis if patient's condition renders it practicable. An artificial anus necessitates a second operation, which is often fatal.

EDMUND CAUTLEY.

Strangulated hernia in a new-born child ('*La Tribune Médicale*, December 2, 1905).—**Rieffel**.—A strangulated hernia in a child a few hours old when incised was found to contain a loop of intestine and Meckel's diverticulum. The neck of the sac had to be enlarged before the hernia could be returned. The diverticulum was not resected nor the sac of the hernia dissected out, but the pillars of the inguinal ring were sutured in an attempt at a radical cure. The operation was begun under light anæsthesia and completed under full narcosis, which was well borne. The gut was drawn into the hernia by Meckel's diverticulum, which also caused the strangulation. Had the condition of the child permitted it, resection of the diverticulum would have avoided the necessity to enlarge the neck of the sac; this would have also avoided the possibility of a foreign body being lodged in the diverticulum at any future time.

T. P. BEDDOES.

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ON FIFTY CASES OF INFANTILE PARALYSIS.*

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GENTLEMEN,—I would first draw attention to the vascular supply of the spinal cord and to some points in the pathology of infantile paralysis. The lesions found in infantile paralysis usually lie within the distribution of the anterior spinal artery. Most now look upon the disease as of the nature of an infective process, the noxa generally arriving in the cord by way of its central arterial supply. The lesions in infantile paralysis may be widespread, as may be seen from the diagrams and paintings made from specimens obtained from a case which I published in 'Brain,' 1895. The child was six years old and died eleven months after the onset of the disease of independent causes.

The fifty cases upon which this lecture is based are unselected. Unfortunately, the details, mostly written down in the hurry of out-patient practice, are sometimes not as full as one would have desired.

In 46 of my cases 19 occurred in boys and 27 in girls—a curious

* A Lecture given at the London Medical Graduates' College and Polyclinic on March 5th, 1906.

and no doubt chance occurrence, as the disease generally affects boys and girls indiscriminately. In 46 of the cases the disease commenced during the first year of life in 7 cases, between the first and second years in 19, and between the second and third years in 11. There was 1 case between the third and fourth years, 1 between the fourth and fifth, and 5 between the fifth and sixth. One girl was in her fourteenth year when attacked. All the cases in the first year occurred in the second six months, the youngest being six months old. The age incidence will thus be seen to be the usual one, the majority of the cases occurring during the second and third years.

In most of the cases the onset occurred during the warm months of the year. In 2 cases there was a history of a fall, but it was slight, and the injury had apparently nothing to do with the causation of the disease. There are 4 cases in the 50 in which the disease followed upon an acute infective illness, 2 immediately after measles, 1 after typhoid fever, and 1 after acute rheumatism. The last case was an interesting one, in which a girl aged 6 years had a well-marked effusion into the joint, and there was at first some difficulty in diagnosis.

I will now give briefly the outlines of an ordinary case.

CASE 40.—A boy, J. F—, aged $2\frac{1}{2}$ years, who was twelve months old at the time of the onset, in August, 1904, and who has been continuously under observation since. On the Friday he became ill and vomited, and on the Sunday the legs were completely paralysed. Towards the end of November he could creep about a little, the left leg being the worst. At the end of December he could stand with the help of a chair and could bring the left leg (which was the worse of the two) forward at the hip. Thus in a little over four months there had been a very considerable recovery. On March 1st, 1906 (nearly seventeen months after the onset), the following note was made: "The right leg has recovered apparently perfectly. The left leg is smaller than the right. He can walk with the help of the hand. All the muscles about the left ankle are paralysed, and the foot flail-like. The toes are pointed, and there is slight pes cavus. There is no power in the quadriceps extensor, but the ham-string muscles act a little. In the iliopsoas there is some power. The child could not be got to use the sartorius or the adductors of the thigh. The external rotators seemed to have retained some power. Electrical examination was not possible without force."

This case illustrates some of the main features of the disease in

its stages of (1) onset, (2) paralysis, (3) amelioration, and (4) residual paralysis, where little or no further improvement is to be expected. The initial stage is mostly accompanied by fever, sometimes vomiting, and rarely by pains. I have no note of convulsions having occurred in any of my cases, and only in one, viz. a girl aged $7\frac{3}{4}$ years, was pain complained of. The initial stage does not usually last more than twelve to forty-eight hours. It was noted as prolonged even up to a fortnight in three cases, and in the cases following upon an acute infective illness the symptoms were lost in those of the pre-existing disease.

Sometimes this initial stage is practically absent, and the paralysis is observed the first thing in the morning (the morning paralysis of West). I have records of six such cases in which the mother stated that the child went to bed quite well on the previous evening.

The disease passes into the next stage when the paralysis appears. The onset of the paralysis is usually abrupt, but I have notes of one case where one leg was stated to have been paralysed on the Friday and the other on Sunday.

The paralysis in the first instance is nearly always, as in J. F—, relatively extensive. It may involve all four extremities, as in one of my cases; or both legs, as in fifteen; or one leg only, as in fifteen; or one arm, as in seventeen cases. In two cases it was probably hemiplegic, and in one case it involved the leg and the opposite arm. In nearly all my cases, so far as I have been able to ascertain, where the paralysis was eventually found in one or more groups of muscles alone, there was evidence from the history and examination of the limb that the paralysis was much more widely spread earlier in the disease. This stage of a more or less generalised paralysis lasts at most a few weeks, during which the paralysis, when once it has reached its height, remains stationary. It is during this stage that the muscles begin to waste in the second or third week of the disease, and the electric reactions undergo change. The so-called tendon jerks disappear if the muscles concerned are affected.

An early recovery, which, however, has only remained partial, was noted in one of my cases. This recovery usually sets in from a couple of weeks at the earliest to six to eight weeks. The more widely distributed the paralysis, the more extensive the recovery. Indeed, some have maintained that where exceptionally the initial paralysis is very limited, little recovery ensues. The question has been much debated as to whether complete recovery ever takes place (the so-called temporary paralysis of Keating). At any rate,

all are agreed that it is very rare. The following case is included in my series.

CASE 33.—A girl suddenly ceased to use her left arm at the age of 10½ months. Three months later the child was found to have a little wasting about the muscles of the shoulder, but there was no dropping of the head of the humerus. No other cause could be found to account for the restricted voluntary movement. No electric examination was possible. I saw the child a week ago, and I could find no trace of the previous illness.

CASE 22.—In August, 1903, I saw a young woman whose right arm was smaller than the left, but all the muscles appeared to act equally. The right leg was also a little smaller than the left. There was a history of a sudden onset at the age of 6 months. I thought it was most probably an old infantile paralysis of the hemiplegic form (not infantile hemiplegia), in which recovery had ensued.

By far the most common result is to have only a partial recovery, sometimes small in amount, occasionally even very considerable.

CASE 39.—A girl, then aged 1¾ years, became paralysed during the day in her right leg in October, 1905, so that she was unable to walk at night. When seen in February last she could walk well. There was a very slight wasting of the muscles below the right knee, and a little weakness in the peroneal muscles, with a trifling tendency to talipes varus.

In the case of J. F—, mentioned above, the original paralysis involved both legs, and, as is not very uncommon, one of the legs has recovered completely, whereas the recovery in the other is very partial. The same result was noted in two other cases. In another case with a very partial recovery in the right leg the other foot showed a slight degree of pes cavus.

CASE 8.—In another child, aged 2¼ years at the time of onset, and whom I saw four months later, there was a paraplegia, the left leg being the worse of the two. She could then just walk round a chair by holding on to it. Six years later she could walk comfortably but a little awkwardly. There remained quite a noticeable wasting in the muscles of the left leg below the knee, with shortening and a compensatory spinal curvature, and also wasting of the right thigh muscles. I shall refer to this case again under "Residual Paralysis."

In the case of the arm the same more general character of the

paralysis, followed by recovery of varying degrees, is observed. It is well illustrated in the following cases:

CASE 43.—A girl, aged 11 years, came to the Leeds Infirmary a short time ago with chorea, especially marked on the left side. Some of the small muscles of the hand were found to be wasted and paralysed. Abduction and opposition of the thumb were impossible. The actions of the interossei and abductor of the little finger were weak. The whole arm itself was found to be distinctly smaller than the other, but all the muscles acted well. All muscles responded readily to the Faradic current with the exception of the small muscles of the hand. A history of an acute attack of paralysis at the age of five years was obtained.

CASE 41.—A girl, aged 4 years, now in the Leeds Infirmary with a view to tendon implantation, was seized with paralysis in the left arm two years ago. The whole of the left arm is smaller than the right, but the movements at the shoulder are normal, though weaker than on the opposite side. Flexion and extension at the elbow are efficiently carried out. The extensors of the wrist and proximal phalanges act well and supination is normal. The flexors of the wrist and fingers are almost completely paralysed and pronation is imperfect. These muscles are wasted and show the reaction of degeneration. Some little power can be made out in flexion of the wrist when the over-extended wrist (due to the weight of the hand) is artificially supported.

A still more extensive paralysis was seen in December, 1899.

CASE 9.—A girl, aged 2 years, was suddenly seized with paralysis in the left arm on the second day of the illness. Here the left arm is described as being completely paralysed at the shoulder, and hyperextension was noted at the metacarpo-phalangeal joints (unopposed action of the extensor communis digitorum). The reaction of degeneration was present in the affected muscles. I have failed to trace this case, but at the time it appeared almost certain that there would be no further recovery.

The above cases illustrate the varying degrees of recovery after the more generalised paralysis of the earlier phase of the disease has remitted and the patient has passed through the stage of amelioration or regression.

If the child presents itself in the earlier phases of the disease particularly, it is very important to ascertain to what extent recovery is likely to proceed. The first essential is to make a careful exami-

nation to ascertain what muscles are involved. Infantile paralysis, like many other diseases, is quite uninstrusive and uninteresting if the diagnosis is to stop short at the mere recognition of the disease.

It is therefore necessary to bear in mind which muscles are specially vulnerable to the disease. The muscles in the front of the whole leg suffer more severely than those at the back of it. The flexors of the foot on the leg, the extensors of the toes and of the big toe, the peroneus longus and tibialis posticus, and the quadriceps extensor are thus more vulnerable than the calf or hamstring muscles. The iliopsoas and often the sartorius retain at least some power. The distal muscles in the leg and the proximal ones in the arm usually bear the brunt of the disease. In the arm the deltoid alone, or in combination with the biceps, brachialis anticus, brachio radialis, and perhaps with the supinati and pectoralis major (part) are susceptible to the disease. Next should be placed the extensors of the wrist, and, I think, the small muscles of the thumb.

The power of standing with or without assistance, and of walking, and also the nutrition and reflex activity of the limb, are noted; then the movements at all the joints are carefully tested.

Before it is decided that no power remains in a given group of muscles, the overstretched muscles should be further stretched so as to give them the chance of acting at an advantage, as Tubby and Jones have specially pointed out. I have not much experience of this method, but in one case—as noted above in Case 41—the opposite effect was noticed. In a very young child this examination is obviously by no means easy, but it is of the first importance to know what muscles are involved. If the child is a little older, it is often easy to get it to try to imitate with the affected limb any passive movement impressed on the sound limb. The electrical examination may be, for obvious reasons, also of great difficulty, yet the importance of it in prognosis, and even in diagnosis in a difficult case, can hardly be over-estimated. The latter point was particularly illustrated in Case 50, in which rheumatism had preceded the attack of paralysis. In prognosis it provides invaluable evidence as to the likelihood of recovery, hardly to be obtained in other ways.

The change in the electric reactions occurs as early as the twelfth to the fourteenth day, sometimes later, and the exaggerated galvanic irritability disappears in about two or three months and then steadily decreases, but it is very characteristic of infantile paralysis that intramuscular galvanic irritability may be demonstrated for a long time in the paralysed muscles (Bruns and Winscheid). It is said that if

there is no reaction to Faradism in two months permanent loss of power more or less complete is to be feared.

In the regressive stage of the disease the muscles in which the electric excitability has become steadily altered are condemned to definitive atrophy. Muscles which present the reaction of degeneration ought to be looked upon, if not as definitely lost, at least as seriously threatened (Déjerine and Thomas).

During the stage of amelioration the paralysis becomes more limited, but, unfortunately, as stated above, rarely disappears entirely, so that a residuum of paralysis practically always remains, and it is this residual paralysis, and especially its distribution, which I now come to consider.

As is now well known, muscular movements are localised in the spinal cord, those of the limbs in the cervical and lumbar enlargements respectively. Infantile paralysis is a disease of which the stress falls upon certain vascular districts of the spinal cord, and the segmental topography of it usually is obvious. The residual paralysis remains because the corresponding centre is destroyed, and this nervous tissue is so highly specialised that true regeneration or vicarious function is not observed in it. Recovery, partial or otherwise, may occur, as Bruns and Winscheid state, because the motor centres occupy more than one segment, and so foci of poliomyelitis which confine themselves to one segment need not necessarily cause permanent paralysis; this latter condition, however, occurs, unfortunately, very rarely, as the branches of the central artery distribute themselves over numerous segments.

In consequence of the grouping of muscles in the individual segments of the spinal cord there are certain types of the residual paralysis. These are given here chiefly after Starr.

In the arm there is the common upper-arm type, in which the deltoid, supra and infra spinati, biceps, pectoralis, brachio-anticus and brachio-radialis are affected. These muscles are localised in C. iv, v, and vi. There is also the more limited type mentioned by Haushalte, in which the deltoid or even part of it is affected, with or without the biceps, brachialis anticus and brachio-radialis. In the lower arm type the muscles below the elbow are affected—viz. the extensors or flexors of the wrist, the brachio-radialis escaping. In other cases the interossei, thenar and hypotenar muscles are involved, the long flexors escaping. These muscles are localised in C. viii and D. i. In some cases the upper and lower arm types may be combined (as in Case 10) in which instance the whole arm may be more or less useless.

There appears to be more difference of opinion about the exact localisation in the lumbar enlargement, but the association of certain muscles in infantile paralysis in the leg is obvious.

In the lower leg type the peronei alone, or with the anterior tibial group, are commonly affected, although the posterior group may also share in the paralysis or be as fully paralysed as the others. Sometimes it is said that the tibialis anticus may be alone affected or may alone escape. The anterior tibial group are apparently localised in L. v and S. i, and the peroneal muscles in S. i and ii.

In the upper type the iliopsoas, glutei, and muscles about the thigh are those chiefly affected, the muscles on the inner side escaping. The sartorius is said to escape when the quadriceps extensor is involved and its centre appears to be situated higher up in the lumbar cord along with that of the iliopsoas.

In some of the fifty cases the stress of the disease, as represented by the residual paralysis, has fallen on districts of the cord not exactly contiguous. Thus in six cases there was, in addition to the paralysis about the shoulder, an involvement of the small muscles of the hand. Perhaps the following is the best example of it :

CASE 45.—A girl, aged 8 years, was attacked when two and a half years old with infantile paralysis. There is much wasting in the region of the deltoid biceps and triceps. The humerus is displaced downwards and forwards. The forearm is normal. Abduction and opposition of the thumb are lost and these muscles are wasted. Such a distribution would indicate a lesion in C. iv, v, and vi, and also in C. viii and D i.

The exceptional distribution of the paralysis in lesions involving either lumbar or cervical enlargement may be due to irregular offshoots branching out from the diseased focus or possibly to the size of the motor centre (Bruns and Winscheid). It is quite exceptionally rare to find the residual paralysis symmetrical on the two sides.

One of the worst results of infantile paralysis is the deformity which it so often gives rise to. This deformity may be due to the unopposed action of the so-called antagonist, often synergistic, muscles, or it may be due to static causes in Volkmann's sense of the word, such as weight of the limb, etc., or to actual structural change in the muscles. The deformities are much more frequent about the foot than elsewhere, and they are nearly all readily explained. In the knee there may be genu recurvatum, as in Case 40, or contracture in the unopposed hamstring muscles, as in two of my cases. In the upper extremities deformities are less frequent. The dropping of the head of the humerus owing to the weight of the limb was

present in nearly all my cases of the upper arm type, and in two of these it was also drawn somewhat inwards by the pectoralis or subscapularis. In the elbow and hand contractures do not often occur. The flexors may overact in extensor paralysis, or less often the extensors owing to paralysis of the flexors. Deformities do not, as a rule, occur within the first two months, and usually later, but cases have very exceptionally been noted a month after the onset of the disease.

Such deformities, as a rule, tend to increase as the child grows older. Thus no great difference may be noted at first between the two sides, but after a year or two it becomes very manifest. The younger the child at the time of onset the worse is the deformity likely to be.

In the first days of the disease the diagnosis may be impossible, especially before the onset of the paralysis. In a fat child the difficulty may exist even later. Joint and bone affections may possibly at times give rise to much difficulty in diagnosis. Where it is possible the electric examination may be of great help. Peripheral obstetrical paralysis may lead to difficulties in diagnosis. The history is of material assistance as infantile paralysis is rare in the first six months of life. I have notes of a certain number of cases of obstetrical paralysis, but I have not as yet met with any serious difficulty in its recognition.

I need add very little in regard to prognosis. I have never seen a fatal case (Case 1 died of independent causes). Complete recovery is, as has been stated, of the greatest rarity. Partial recovery is the rule. The question of the recovery of the individual muscles has been already mentioned under "The Electrical Examination."

Not a few cases have been recorded where a progressive muscular atrophy has followed upon an infantile paralysis. In one of my cases (No. 45), quoted above, the mother persists in telling me that the muscles of the other arm (which are smaller than they should be) are following in the same way as those of the other limb, which is the seat of old infantile paralysis.

I shall content myself with mentioning only a few points in connection with the management of infantile paralysis. Probably a too active treatment in the early stage of the disease is not desirable (counter-irritation, ice-bags). Warm packs, as suggested by Oppenheim, may be useful. Warm baths have been suggested if stupor is present. Hot diuretic drinks may be given with the view of promoting the elimination of the poison, later systematic massage; active and passive gymnastic exercises are useful. Follow-

ing Starr's suggestion, I recommend these parents to let the child kick about in a warm bath once or twice in the day. Galvanism may be used, but it should not frighten the child, and not too much should be expected of it; after a year it is doubtful whether much benefit will be derived from it (Stintzing).

It is unquestionably a most important matter to guard as much as possible against the development of deformities. Prolonged rest in bed has been suggested with this object. The weight of the bed-clothes must not be allowed to contribute to the dropping of the feet. Malleable splints or other device should provide the necessary support which is wanting. The over-stretching of paralysed muscles must be carefully guarded against, as such a position cannot favour the recovery of power, as Tubby and Jones point out. In paralysis of the upper arm type the arm should be carried in a sling to prevent the dropping of the humerus. In some cases of infantile paralysis which had been seen several years ago it was distressing to see the amount of deformity which had developed since they had passed from under observation.

Orthopædic treatment is of course necessary in these deformities, the division of tendons, muscle implantation, arthrodesis, and also mechanical contrivances.

I have no special experience of tendon implantation. It certainly has not been extensively used with us in Leeds, and I have heard nobody speak with much enthusiasm about it. It appears to me that there are reasons which would not contribute to its successful use in some cases at least. Everything must of course be tried to counteract the distressing deformities, if it only offers the least reasonable chance of success, but too great optimism is to be avoided.

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A CASE OF PARTIAL ATRESIA VAGINÆ, HÆMATOMETRA; HYSTERECTOMY.

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D. K—, aged 14 years, was seen by Dr. J. J. Cox at the Out-patient Department of the Northern Hospital, Manchester. She was a small, rickety girl, one of seventeen children, seven of whom were dead. Her mother stated that she had never menstruated, but that she had suffered recently from pain in the lower part of the body. About four months previous to the date of examination she had passed some blood with the urine and had been ill for about three weeks, her principal complaint being severe pain in both iliac regions, but she was also tired and languid, and had pain all over the body, particularly in the lumbar region.

Inspection of the abdomen revealed the existence of a smooth rounded tumour, reaching nearly to the umbilicus, and lying in the middle line. Regularly ovoid in shape, it was firm and elastic in consistency, and was slightly mobile. It was completely dull on percussion and was not tender on palpation. The mammae were very well developed considering the age of the patient.

Dr. Fothergill was invited by Dr. Cox to examine the case. On inspection of the external genitals it was seen that there was no vaginal orifice. The parts were small and ill-developed; the ischial tuberosities were very near together, and only about three quarters of an inch separated the anus from the orifice of the urethra. There was no hair on the mons veneris. A diagnosis of hæmatometra was clear, and it was decided to make an exploratory incision in the perineum in order to open up the genital passages if possible. By very careful dissection of the tissues between the bladder and the rectum, a tunnel, the length of the index finger, was made. When the finger was inserted into this as far as possible, the tumour being pushed down by a hand on the abdomen, the tip of the finger just reached the lower pole of the ovoid mass. It was considered probable that there was no vagina at all, and that the mass consisted of the distended atresic uterus. As the external parts were so small, and as the artificial canal from the perineum to the tumour was of necessity so narrow, it was not considered safe to open the collection of blood by the perineal route. It was remembered that

a considerable number of fatal cases are on record in which merely an imperforate hymen was divided.

On May 9th, 1905, Dr. Fothergill opened the abdomen and exposed the tumour, which appeared to consist of the distended uterus. In the Trendelenburg position the broad ligaments were tied and divided, the right ovary only being removed. The peritoneum having been divided before and behind, it was found necessary for mechanical reasons to empty the tumour. This was done, and a large quantity of thick chocolate-coloured fluid was removed. It now became clear that the cavity evacuated consisted not only of

FIG. 1.

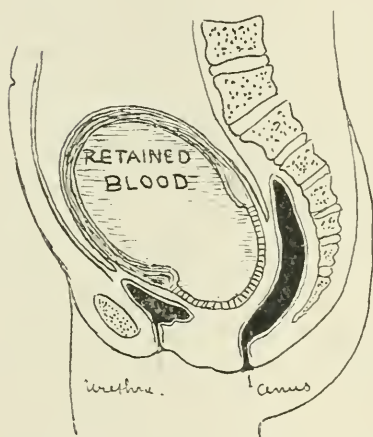


FIG. 2.

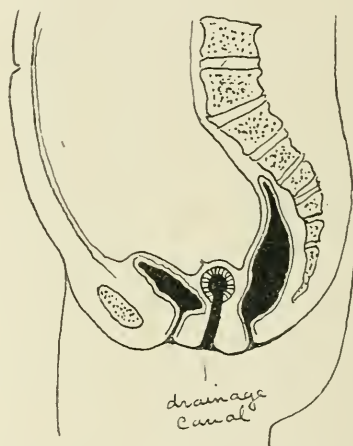


FIG. 1.—Lower part of vagina absent. Uterus and rudimentary vagina distended with blood.

FIG. 2.—After operation. Uterus and part of rudimentary vagina removed. Remainder closed above and drained through perineum.

the uterus but partly of a structure representing the upper portion of the vagina. The uterus contracted rapidly after being emptied, and was seen to have a cervix opening to the rudimentary vagina. Thus the tumour consisted in its middle and upper portions of uterus, its lower pole being vagina, and the whole being so distended as to form a smooth ovoid. It was thought advisable to refrain from dissecting out the rudimentary vagina from the pelvic floor. The vagina was therefore cut transversely, its lower part being left *in situ* and its upper part being removed with the uterus and the right ovary. The appendages were not much damaged by the previous distension of the uterus, and it was thought advisable to leave one ovary. The next step was to secure drainage of the

remnant of the vagina, and this was done by passing a finger into the perineal wound made a few days before and cutting down upon it from within. The canal thus made was packed with gauze, and the cut edges of the vagina were sewn together. The peritoneal flaps were then drawn together by a continuous suture, and the abdomen was closed by three layers of sutures.

Four days later the gauze in the perineal wound was replaced by a glass drainage-tube, which was retained in position until the patient was dismissed from hospital on June the 13th. There was then a track which admitted the little finger leading from the perineum into a small cavity, the lower portion of the rudimentary vagina.

The patient was seen at the end of August, and was in perfect health. From the mother's statement it would appear that there had been on one occasion a considerable discharge of mucus from the remnant of the rudimentary vagina.

SOME CASES OF CROUPOUS PNEUMONIA IN CHILDREN.

By JOHN ALLAN, M.B., Ch.B.Edin.,

Late Resident Medical Officer Ayr County Hospital.

CROUPOUS pneumonia in children is not infrequently met with, but it is not nearly so common as broncho-pneumonia. There is, I think, no disease so satisfactory in its course and termination. Rarely, indeed, does an uncomplicated case of croupous pneumonia in a child end fatally, and unless the child is of very low vitality we can, as a rule, give a favourable prognosis. It is, however, of one or two cases which did not follow the usual course that I wish to write about.

The first case was that of N. K—, a bright little schoolgirl, aged 7 years, who was admitted to the Ayr County Hospital on April the 29th, 1905, suffering from lobar pneumonia, affecting the lower lobe of the left lung. Two days before she had felt cold and chilly when she returned from school, and did not go out to play as she usually did. She also complained of pain in the left side, which was aggravated on coughing. She was very restless during the night and slept badly, and her medical man, who was called in next day, ordered her removal to hospital, where she was admitted on April the 29th.

State on admission.—She had an anxious expression and her cheeks were flushed. The respirations were quickened and the

breathing laboured. She had a short, dry cough, which she tried to suppress owing to pain being caused when she coughed. There was no spit. The examination of the chest revealed consolidation of the left lower lobe. The temperature on admission was 104° F., and

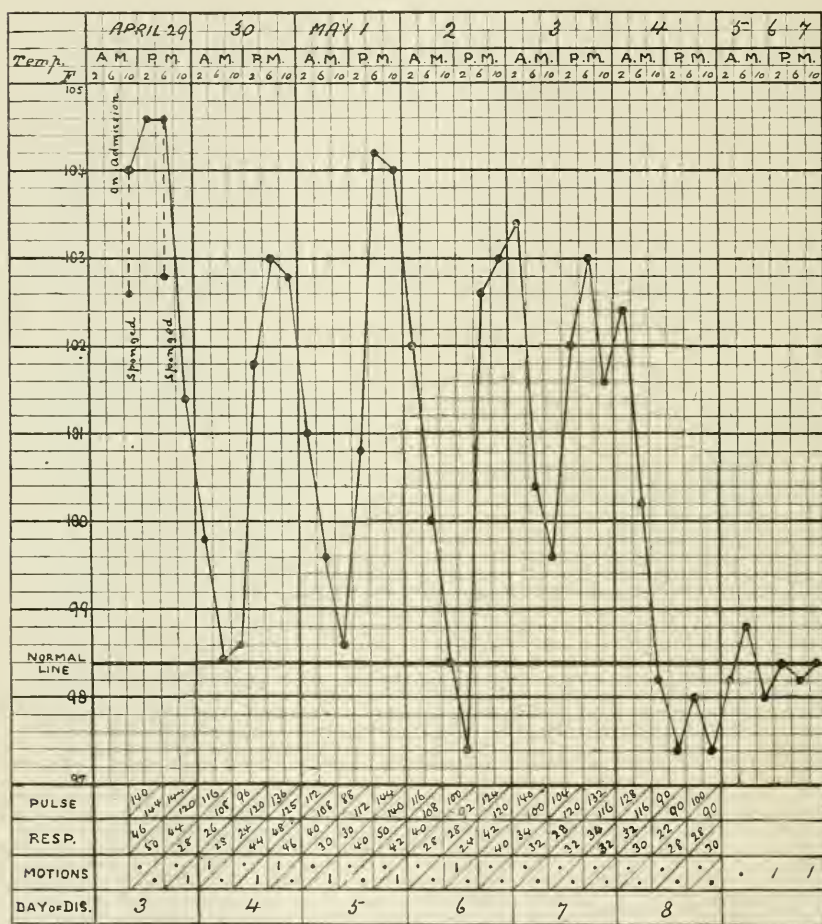


FIG. 1.—Chart of Case 1 (N. K.—).

the behaviour of the temperature formed one of the points of interest in this case. It is graphically represented in the chart (Fig. 1). It will be seen that the temperature always fell to normal in the morning, but rose again towards evening, and the swing was rather suggestive of empyema. The pulse was quick, but of good volume, and there was no albumin in the urine. Her other systems called

for no special note. She was given milk and beef-tea for nourishment, and she was allowed as much cold water as she liked for her thirst. Locally a linseed and mustard poultice was applied for the pain, although no pleuritic friction could be heard on auscultation.

Progress.—She was very restless, especially towards evening, and she frequently moaned with the pain in her side. She sweated profusely. The physical signs—namely dulness on percussion, increased vocal resonance, and bronchial breathing on auscultation—remained unaltered. The temperature seemed to suggest empyema, and it was almost decided to explore the pleural cavity with a needle. But there were several points that seemed to point against empyema. The dulness was not that hard, stony dulness one generally associates with fluid in the pleural cavity. The breathing, though embarrassed, was by no means the typical breathing of an empyema. The fact that the breath sounds and vocal resonance could be heard did not count for much, as very often in empyema they can be heard. That there was pain in the chest was, I think, rather against empyema. Her temperature fell by crisis on May the 4th, and thereafter she rapidly improved. During convalescence she was given cod-liver oil and chemical food. She was discharged on May the 13th, 1905. About a month later I had a case of a similar nature to treat. R. C—, a schoolboy, aged 10 years, was admitted into hospital on June the 10th, 1905. There was lobar pneumonia of the right upper lobe. There was an almost exact copy of the above temperature, the only difference being that it never came down to quite normal. The fall occurred by crisis on the tenth day.

The next case is a case of traumatic pneumonia, which is indistinguishable from ordinary croupous pneumonia. In the 'British Medical Journal' a month or two back there appeared short notes drawing attention to this condition; and in the 'British Medical Journal' of December the 23rd, 1905, there appeared an abbreviated report of the present case. It is not only interesting because the pneumonia followed an injury to the chest-wall, but throughout its whole course it forms an interesting clinical picture.

R. K—, a schoolboy, aged 11 years, was admitted to Ayr Hospital on April the 28th, 1905, suffering from right-sided croupous pneumonia. The following history was obtained: On April the 21st, when out playing, he fell and struck the lower part of the right side of his chest. Two days later he began to feel pain in his side. No notice was taken about it for a day or two, as it was thought to be merely due to the bruising sustained in the fall. The pain, however,

continued, his breathing became hurried and somewhat laboured, he lost his appetite, and he could not rest at night. A medical man was then called in, and the diagnosis of pneumonia was made. As he could not be properly looked after at home, he was removed to hospital on April the 28th.

State on admission.—His face was flushed, and he looked extremely ill. The temperature was 104.8° F. The breathing was rapid and laboured. He had a short, suppressed cough, but no spit. The lower half of the right lung gave the typical physical signs of a consolidated lung. His pulse was quick and feeble, and there was a trace of albumin in the urine. He was extremely restless and noisy, and required someone to be beside him constantly to prevent him getting out of bed. Milk and beef-tea were given for nourishment. He was given 15 grains of trional that night, and after that he was quieter. Two days later he had his crisis, by which time he was extremely weak, so that it was necessary to give some stimulant. Therefore he was put on brandy, \mathfrak{z} ij every four hours, also Tinct. digitalis and Tinct. nuc. vom., \mathfrak{m} v of each thrice daily. It will thus be seen that in the acute stage the illness ran a fairly typical course.

Progress.—His convalescence was very prolonged. At first it was favourable enough, but on May the 15th the temperature, after being normal for over a week, rose to 101.8° F., and for the next ten days it varied from 99° to 102.8° F. A careful examination of his chest was made, and over one limited area posteriorly there was increased vocal resonance and bronchial breathing (see Fig. 2). In the mid-axillary line low down on the right side some pleuritic friction could be made out. A mustard-leaf was applied to the part and the friction soon disappeared. He had night-sweats and was losing flesh. The sputum was scanty but purulent. On May the 23rd antiphlogistine was applied, and two days later the temperature fell to normal. During the next three weeks it always rose 1° or $1\frac{1}{2}^{\circ}$ at night, but was normal in the morning. I examined the sputum for tubercle bacilli but failed to see any. I sent up a specimen to the Clinical Research Association, London, for expert opinion, and I received the following report: "The sputum consists of blood-stained muco-pus, but no tubercle bacilli can be seen after prolonged examination." The patient shortly afterwards began to make headway. His appetite was good, and he gained strength and weight. As soon as he had his crisis his appetite improved, and it was very little affected during the ten days when his temperature rose fairly high. During the earlier part of his convalescence he was given the "three

syrops," but latterly he was given malt and cod-liver oil. On June the 7th nothing abnormal in the lungs could be detected. He was allowed up a few days later, and he was discharged on June the 23rd, 1905.

The last case I wish to mention can be dismissed in a few words, as it is only to record a curious idiosyncrasy on the part of the patient. D. B—, a schoolboy, aged 12 years, came under my charge towards the end of 1904, suffering from a right-sided croupous pneumonia. It ran a perfectly typical course and he had a rapid convalescence, but the point of interest was that it was his ninth

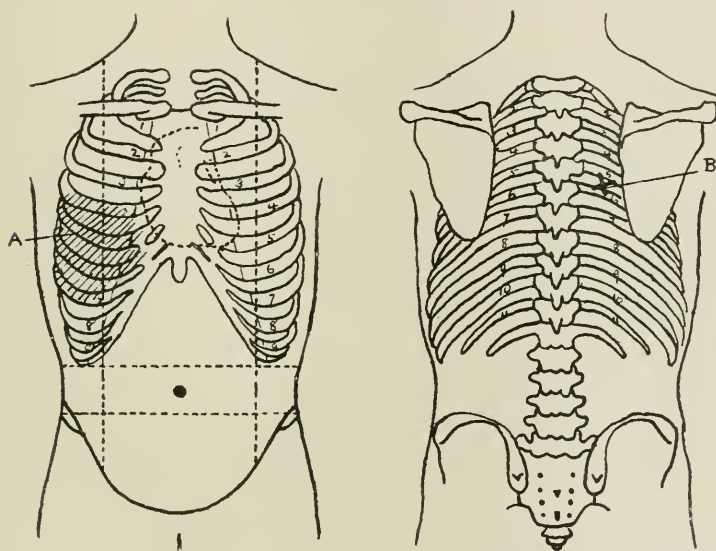


FIG. 2.—A. Consolidated lung in acute stage. B. Point where during convalescence bronchial breathing and increased vocal resonance were heard.

attack. The ward sister had had him four times previously under her charge, and there seems little reason to doubt that he had been attacked so often. Every year since he was a child of three he had pneumonia at some period during the autumn or winter, and it was sometimes the right lung, sometimes the left, that was the affected one. That pneumonia can attack a person more than once will be admitted, but it is very exceptional to have so many attacks, especially when they come on about the same time each year. Not only is there this individual idiosyncrasy, but there may be a family idiosyncrasy. When at Ayr I had a young adult twice under treatment in hospital for croupous pneumonia, the left lung being

the affected one on the first occasion, the right lung the second time. I had also a sister of his under my charge for the same complaint. In taking the history of the cases I ascertained that two other members of the same family had suffered from pneumonia. Here, then, were four young people of the same family who had suffered from croupous pneumonia, and the time of life at which they were attacked was the same, namely early adult life.

In conclusion, I beg to tender my best thanks to Dr. Rowland, through whose kindness and courtesy I am permitted to publish these cases.

The Society for the Study of Disease in Children.

A MEETING of this Society was held on March the 16th at No. 11, Chandos Street, W., Dr. G. A. SUTHERLAND being in the Chair.

A Case of Symmetrical Dimpling of the Skin on the Dorsal Aspect of the Extremities of both Acromial Processes in a girl, aged 8 years, was exhibited by Dr. ERIC PRITCHARD. The condition was noticed at birth.

Mr. CLEMENT LUCAS said the interest of such cases was in the family history showing that there was a decided mental and nervous defect associated with apparent accidents, such as amputations and adhesions and dimplings in certain situations. There was defective development probably very early in the embryonic state, and very frequently there was mental defect.

A Case of Achondroplasia was exhibited by Dr. KENNETH R. HAY (introduced). J. K—, aged 2 years, may be considered to be a typical example of the condition called achondroplasia. He is the elder of two children. The younger is aged 4 months, and is to all appearances normally shaped. The father suffers from phthisis, and has been subject to fits, probably epileptic in nature. The mother is not a robust woman, but says she has always enjoyed good health. There is no history of syphilis. At the time of the child's birth the mother was in labour about twenty-four hours, and delivery was effected by instruments. His intelligence is, perhaps, rather below the normal for a child of his age. He can pronounce the words "Daddy" and "Mummy," but otherwise does not talk. He is inclined to be irritable, and to resent any interference. He can stand and also walk a little with aid, but is very unsteady. In the standing position the typical lumbar curve is well seen. The head is decidedly large, and the frontal bones prominent. The root of the nose is depressed. The anterior fontanelle is open. The skull circumference measures $20\frac{1}{2}$ in. The body is long relatively to the limbs, and the chest rather narrowed. There is slight beading of the costo-chondral joints. The heart and lungs are normal, and the sexual organs well developed. The limbs are shortened in

a characteristic manner. The hands and fingers are dumpy. The humerus and ulna each measures $3\frac{3}{4}$ in. The femurs measure $4\frac{1}{4}$ in., and the tibiae 5 in. The bones feel thick and hard, and are not apparently curved.

Mr. GEORGE PERNET said the deformity was apparently worshipped by the ancient Egyptians, who looked upon it as the triune god of the resurrection. He exhibited pictures, with which he had illustrated an article contributed to the *BRITISH JOURNAL OF CHILDREN'S DISEASES*, specimens of which could be seen in the British and most other great museums.

A Case of Erb's Paralysis in a child, aged $4\frac{1}{2}$ months, was exhibited by Mr. HUGH LETT. The lesion involved the fifth, sixth, and seventh cervical nerves.

Dr. ROBERT HUTCHISON drew attention to the rarity of Erb's paralysis in adults, and inferred therefrom that the majority of such cases recovered if left alone. Though the progress was slow, he believed the majority of cases got well without operation.

Mr. LOCKHART MUMMERY would not operate in such cases until the lapse of a considerable period. He would concentrate attention on the prevention of adhesions in the joint, which were sometimes severe. He related a case where the adhesions were so great in the shoulder-joint that they had to be broken down, and there was still a tendency for them to form.

Mr. MILNER BURGESS (Harlesden) said that such cases in his experience recovered slowly.

Dr. EDMUND CAUTLEY thought that people were apt to take too optimistic a view about such cases.

Dr. LEONARD GUTHRIE also had seen cases where there had been no improvement. The progress depended upon the lesion. If the fifth and sixth nerves were broken across, it was difficult to see how regeneration could take place simultaneously. If the nerves were simply bruised, subsequent improvement could be easily understood.

Mr. LETT, in reply, said he had no intention of advising operation in this present case, as the child was improving. He did not propose to leave off the splint yet, as there was a tendency to dropped wrists.

A Case of Precocious Development in a boy, aged 4 years, was also shown by Mr. HUGH LETT (introduced). He had been rather backward until he was 2 years old, the pubic hair then appeared, and development took place with extreme rapidity. There was a remarkable growth of hair all over the body, especially over the pubes and in the lumbar region. The penis and testicles were large, and resembled those of a young adult. His voice was deep, and like a base voice not yet under full control. His muscular development was remarkable, especially in the thighs, and he was possessed of proportionately great physical strength. A skiagram of the wrist showed ossification taking place in all the bones of the carpus, and one of the knees presented the appearance of the joint in a boy seventeen or eighteen years old. No enlargement of the thyroid or suprarenal bodies could be made out. His appetite was voracious. Intellectually he was bright, but had a terrible temper. He had nocturnal enuresis. He had had no fits, and was not subject to headaches.

Mr. CLEMENT LUCAS related a case of precocious development in a girl, aged 7 years. In her case there was a solid tumour of the ovary, and after that tumour had been removed, the abnormal characteristics disappeared, except the hair on the pubes.

Dr. LEONARD GUTHRIE had many years ago seen a similar case in a boy aged 3 years. He had not been able to trace the case. Most of the cases he had read about appeared to have died young.

Dr. PARKES WEBER said that tumours associated with precocious development were not in every case hypernephromata. He did not think all cases of precocious development were connected with tumour. He thought an alternative way of looking at the cases was to regard them as a reversion to a lower type, in which development occurred much more rapidly than in the human being.

Mr. LETT, in reply, said that the father had considerable sexual development, and had very frequent coitus, and he died from paralysis. He was paralysed on one side when the child was conceived, and subsequently he became paralysed on the other side, and died. In a few cases tumours of the pituitary body were found, and acromegaly had been associated with other cases.

A Case of Acne-scrophulosorum was exhibited by Dr. POYNTOX. A delicate child, aged $5\frac{1}{2}$ years, with somewhat large cervical glands, and a history of tuberculosis on the mother's side. The rash commenced in June, 1905, upon the arms and legs, in the form of discrete papules, which at first itched very slightly. Since that time these papules have been coming out in crops, some of them appearing on the trunk, and an occasional one upon the face.

A Case of Congenital Coloboma of the Eyelid was shown by Mr. SYDNEY STEPHENSON. A boy, aged 3 months, was brought to hospital on account of a deformity of the right upper lid, present since birth. Upon examination, a quadrangular gap was seen in the right upper eyelid. It involved the inner half of the lid with the exception of a small nodule at the inner end, and extended about half way from the orbital to the palpebral margin. The puncta lacrymalia were present, the upper one being situated on the nodule mentioned above. When the baby shuts his eyes, the right cornea and pupil can be seen through the gap in the eyelid, thus producing a somewhat weird effect. There is no particular thickening of the palpebral conjunctiva, no lipo-dermoid of the conjunctiva, no dermoid of the cornea, and no coloboma of the iris. The baby, who has a small fovea sacralis, presents a tiny supernumerary auricle in front of his right ear. The patient is the fifth child in the family, none of the other members of which have any deformity of the eye or its appendages.

Mr. CLEMENT LUCAS advocated early operation.

A Case of Congenital Deformity of the Hands in a baby, aged 4 months at present time, was exhibited by Mr. H. S. CLOGG. The infant is one of twins, the other child being perfectly well formed. There is nothing in the family history of any importance. The period of gestation and the labour were normal; delivery took place at the ninth month. The *right hand* is shortened and comparatively broadened. The terminal phalanges of all the digits are stunted, and it appears that the bony element is suppressed, there being only the soft tissues present. The nails are very imperfectly formed. Some power of flexion appears present in the terminal stump. The *left hand*: The fingers of this hand are curiously bound together at their distal extremities. The proximal portions of these are free from one another, and the webs are not unduly prolonged down upon the inter-

digital clefts. The distal halves of the digits are fused together apparently by soft tissues only, and overlapped in a curious way. On the flexor aspect of these fused digits there is a distinct groove suggesting a constriction by a band; this is especially evident on the flexor aspect of the second finger. The terminal phalanges are again very imperfectly formed, and it would appear that the bony element in each was absent. The nails are very rudimentary, as in the right hand. Flexion of the fingers as a whole is possible; the amount of movement in each finger cannot be estimated on account of the fusion. The thumb is free, but the terminal phalanx is suppressed, apparently by absence of its bony element.

A Case of a Congenital Unilocular Cyst of the Neck was exhibited by Mr. DOUGLAS DREW.

Drawings by a Child recovering from Chorea were exhibited by Dr. W. EWART, and he read a short paper on **The Treatment of Chorea by Strychnia**. He said that strychnine is to be prescribed as a nervine and general tonic, and though it has to be pushed, any approach to toxic symptoms is to be carefully avoided; this is best secured by the combined influence of ammonium bromide. Obvious benefit has been obtained in children of six to twelve years of age from doses of the liquor from 5 to 10 minims administered three times daily and guarded by bromide.

Dr. G. A. SUTHERLAND thought a large number of cases were treated by stimulants rather than by sedatives, and his method had been to give as full a diet as possible, complete rest in bed, and where there was weakness brandy in fairly full doses.

Dr. LEONARD GUTHRIE remarked that Dr. Ewart's case improved after four and a half weeks' treatment, and most cases improved in that time without strychnia, but with rest in bed and good food.

Dr. ERIC PRITCHARD asked whether Dr. Ewart thought there might be an antagonism between the therapeutic action of the strychnia which was to ensure tonic contractions and the clonic contractions characteristic of chorea.

Dr. EWART, in reply, said he would like an opinion on the point raised by Dr. Pritchard. He had not gone deeply into the theory of the matter, but gave the strychnia under the idea that the chorea was an infection. The most telling cases were the paralytic.

A Specimen of Congenital Hypertrophic Stenosis of the Pylorus removed from a child aged 9 weeks, one of twins born somewhat prematurely, was shown by Dr. EDMUND CAUTLEY. Symptoms began at 3 weeks of age. The child came under treatment a week before death, weighing 3 lbs. 7 oz. The vomiting was by no means marked. A normal stool was passed a few days before death. The case illustrated moderate pyloric hypertrophy, which had not produced complete obstruction, and nothing in the history suggestive of spasm.

Notes on a Tumour of the Pons Varolii in a boy, aged 8 years, were read by Dr. C. O. HAWTHORNE. The most noticeable symptoms were a constant series of jerks and spasms mainly affecting the trunk, extreme retraction of the head without rigidity, optic neuritis, and well-marked knee-jerks.

Dr. G. A. SUTHERLAND remarked that it was an interesting combination to have opisthotonos without spasm, but with rigidity. It suggested, as

Dr. Hawthorne said, some lesion of the cerebellum; it was probably some pressure being conveyed to the cerebellum.

Notes on Specimens from a Case of Small White Kidney from a girl aged 12 years, were read by Dr. C. O. HAWTHORNE. The microscopic changes were those of chronic interstitial nephritis.

Editorial.

THE AMALGAMATION OF MEDICAL SOCIETIES.

It is now about twelve months since a proposal was placed before the fellows and members of the various London Medical Societies that there should be an amalgamation of the numerous societies under one title, and that the societies at present independent should become sections of one great society. The proposal came originally from the Royal Medical and Chirurgical Society, who seemed to have discovered that they might spread the mantle of their royal title over other societies without the intervention of an Act of Parliament, and that there would be no great difficulty in obtaining the right to use the term "Royal Society of Medicine," or "Royal Academy of Medicine," for this new amalgamation. What was present in the minds of those who first contemplated this scheme was to bring together a few of the larger medical societies holding meetings in Hanover Square or Chandos Street, and no one dreamt of uniting every conceivable medical society under one head and under one roof. A meeting was called at the Royal College of Physicians with Sir William Church in the chair, and the limited scheme was there put forward, and a committee of five proposed, giving a preponderance to the Royal Medical and Chirurgical Society. The advantages of amalgamation were eloquently explained and eagerly listened to. These would be two, economy in subscriptions, and a royal title for all without selection. Thus the two most seductive allurements were put forward, those which only the most stoical of philosophers have been known to resist, the love of title and the love of money. The meeting became enthusiastic, and the idea of amalgamation was

carried far beyond what was originally intended. The bait was irresistible; and like an over-stocked lake in which food is scarce, a swarm of hungry fishes rose to swallow the tempting morsels. The eel wriggled up from the bottom and hustled the lusty trout in its anxiety to share in the golden feast, the perch and bream thrust their open mouths between, and minnows innumerable swam eagerly around. Never before was there such an enthusiastic agreement. Any doubt as to difficulty was frowned down, and the voice of criticism was hushed. Someone proposed that every Society meeting at Hanover Square or Chandos Street should send a representative, and even this was not considered enough, so, finally, every London society, and others only occasionally meeting in London, were asked to send delegates. Thus the original idea, which had tempted many to the meeting, of forming a somewhat exclusive body corresponding to the Academy of Medicine of Paris, was wholly lost sight of, and a cosmopolitan body was elected to bring about a general amalgamation of every medical society having any connection with the Metropolis. As a result, nearly thirty societies received invitations to the first meeting of delegates, and though some five or six were soon ruled out as being too detached,* there remained some twenty-three or twenty-four to be considered. A small committee was appointed to draw up a scheme of amalgamation, and its report was considered on July the 19th, 1905. This committee proposed that "All monies, books, premises, and other properties belonging to any of the societies which join the proposed union shall become the property of the new society." That anyone paying three guineas per annum shall have the title of *Fellow*, the right to attend the meetings of any section, and the use of the library; that anyone subscribing one guinea per annum shall have the title of *Member*, and the right to attend the meetings of the Section to which he belongs, but if he wished to use the library he must pay an extra guinea per annum, and half a guinea more to attend any other Section; that each Section should have the power to elect new members "provided that the names of the candidates proposed for election be previously submitted by the Sectional Council to the

* These were the Hunterian, the Harveian, the Anatomical, the Physiological, the West London Medical and Chirurgical, and some others.

Council of the (new) Society for their approval ;” that the proceedings of the various Sections should be published monthly by an Editorial Committee, who “will select, subject to the approval of the General Council, such papers as they may consider worthy of publication in the ‘Transactions’ of the Society.” A firm of chartered accountants examined the accounts and rolls of membership of twenty-two Societies, and found that 3725 were members of one Society only, and 1272 were members of more than one Society. They gave a very guarded opinion as to the financial practicability of the scheme, stating that “if 3800 members of other Societies than the Royal Medical and Chirurgical become members at a subscription of one guinea per annum the new Society will have a small balance of income over expenditure.” A more roseate estimate is afterwards given on the supposition that 600 new members might desire to become Fellows at a subscription of three guineas per annum, over and above the present 400 Fellows of the Royal Medical and Chirurgical Society. The Committee then went on to suggest the enrolment of sixteen Societies as so many sections of the new Society, reducing the number of twenty-two down to sixteen by certain sub-amalgamations, under Dermatological, Laryngological, Obstetrical, and Therapeutical headings. Such was the scheme referred back to the various Societies for consideration. In November last the replies of the various Societies were asked for.

It was then found that though many expressed a general approval of amalgamation, almost every society had reservations. Many refused to risk their capital and required complete autonomy ; others that their ‘Transactions’ should be published in continuity with those preceding. Three societies insisted that their lady members should have the same rights as men, whilst the Fellows of the old Medical Society insisted that the privileges of their Fellows should be carefully safeguarded, which means that they claim the title of *Fellow* and the use of library and meetings for one guinea per annum ; further, that the financial position of the new body be found satisfactory. The financial position is, indeed, a very grave and serious question, especially as medical men are notorious for their business incapacity. It is easy for an independent society to keep its expenses within its means, but when all funds are pooled, and sections receive

doles, all incentive for secretaries to keep up their sections will be lost; and little check can be kept on a central spending body, which will resemble the County Council in its powers over its constituent sections.

The whole machinery will be far too cumbersome, and if the present subscriptions are looked upon as a basis of future work, it is probable, after the first year or two of amalgamation, financial collapse may overwhelm the London Medical Societies. The Society for the Study of Disease in Children sent a representative to the General Committee of Amalgamation with a watching brief, and without authority to commit the Society in any way. When the scheme came before the Council they decided not to consider the matter until it was known whether the Medical Society and Royal Medical and Chirurgical Society could arrange a union. Meanwhile, however, certain preliminary expenses have been incurred by the General Committee, and it is probable that some definite decision will have to be arrived at, whether it is well for the Society to join the amalgamation or whether it should preserve its independence.

Abstracts from Current Literature.

Medicine.

Cerebro-spinal meningitis (*Arch. of Pediat.*, 1905, vol. xvii, p. 537). —**J. W. Vanderslice**, under the title of "Leptomeningitis," considers the different varieties due to the diplococcus intra-cellularis, pneumococcus tubercle bacillus, streptococcus, and, less often, the gonococcus, typhoid bacillus, colon bacillus, and staphylococcus. The diplococcus intra-cellularis is not always found in cases of epidemic cerebro-spinal meningitis, idiopathic meningitis, and chronic basilar or posterior basal meningitis. In many instances the affection causes no diagnostic symptoms during life and is only found at autopsy. The onset may be insidious, epileptiform, or hysterical in character. In the latter there are giddiness, delirium, or somnolence, hyperæsthesia to light and sound, and irregular symptoms. Lumbar puncture is a valuable aid to diagnosis. Cases must be differentiated from typhoid fever, pneumonia, acute otitis media, and hysteria. Hydrocephalus, blindness, deafness, and mental disorder are common sequelæ in cases which recover. The nasal douche should be used as a prophylactic measure in the epidemic disease. For general treatment: Cold to head and back of neck; counter-irritation by iodine, blisters, and Paquelin's cautery; inunctions of iodoform, mercury, and belladonna to the shaved head; abso-

lute rest in a cool, darkened room; avoidance of irritation; bathing to control fever; careful feeding; calomel, castor oil, and salines alternately; mercury, iodides, and bromides internally; alcohol, digitalis, and caffeine if stimulants are necessary. Cerebral pressure should be relieved by draining the ventricles into the subdural space, through the anterior fontanelle, or by lumbar puncture. It should be done early, and has proved partially successful. **Francis Huber** (*loc. cit.*, p. 579) reports a 25 per cent. recovery in 112 hospital cases during 1904 and a mortality of 66 per cent. He concludes that "the mildest cases require no treatment; the malignant react to none. Medicine, with all its resources, is neither capable of combating the attack nor responsible for its results." (J. C. Wilson.) Faulty notions as to the influence of remedies arise from the difference in the virulence of epidemics. Progress cannot be foreseen from the nature of the onset. Severe cases may unexpectedly clear up, and convalescence is often interrupted by recrudescence or relapse. The treatment is symptomatic and much the same as that recommended by Vanderslice. Huber prefers phenacetin to bromide for the relief of headache as more efficacious and less likely to cause gastric derangement. Severe vomiting is relieved by cracked ice, careful dieting, ice to the epigastric region, hypodermics of morphine, and lumbar puncture. Packs or baths at 90° F. to 98° F. relieve irritability, promote sleep, and lessen muscular spasm. Hot baths at 104° F., with ice-bag to head, for fifteen to twenty minutes once or twice a day, as recommended by Aufrecht in 1894, give good results. Lumbar puncture relieves cerebral pressure. Not more than 30 c.c. should be removed unless the pressure is pronounced. The injection of various anti-septics is of doubtful value. A. J. Wolff, of Hartford, found a decided antagonism between the Klebs-Loeffler bacillus and the meningococcus, and that cultures of the latter were killed by antidiphtheritic serum. The serum has not, however, proved of benefit. EDMUND CAUTLEY.

Infective endocarditis (*Arch. of Pediat.*, 1905, p. 688).—**C. E. Judson** records a case ending in recovery after an illness of over three months. The patient, a boy aged 10 years, was seized with headache, pain in the knees, nausea, and vomiting, followed by chilliness, fever, and a maculo-papular rash. The arthritis spread, and a soft systolic murmur was heard over the præcordia at the end of two weeks, with a trace of albuminuria and no splenic enlargement. Salicylates were of no use. The fever ran a typically hectic course, up to 105° F. or more; the spleen became enlarged, and a pure culture of a diplococcus was obtained from the blood. Leucocytosis ranged from 20,000 to 34,800, and anæmia was very marked. Edema developed, and for some weeks the boy was extremely ill. On the sixty-fifth day diuresis suddenly set in, and the oedema cleared up. This result followed the administration of theocin, in doses of two grains, for five or six days. The fever subsided on the seventy-sixth day. The diagnosis was based on the course of the fever, marked anæmia, rash, splenic enlargement, and the diplococcus in the blood. The cardiac muscle was profoundly affected, but the valves escaped with less damage. Embolism, chills, and sweats were absent. Arsenic, iron, and quinine were of little value. Theocin proved a powerful diuretic. Intravenous injections of 3-5 c.c. of 4 per cent. collargol solution on alternate days for twelve days failed and caused increased leucocytosis. When seen six months later the first sound of the heart was indistinct, prolonged, and followed by a faint systolic mitral murmur. The case is remarkably like one recorded in the '*Lancet*' (1891,

vol. i, p. 1375) in a man, aged 21 years, which ended in recovery after an illness of about the same duration, leaving behind a tricuspid systolic murmur.

EDMUND CAUTLEY.

Goitre and rheumatism (*'Arch. of Pediat.'* 1905, p. 776).—**J. R. Clemens** states that in a series of thirteen cases of parenchymatous goitre under him for acute disease, all had rheumatism. The age of the children varied from eight to twelve years, and twelve of them were girls. The goitres were noticed at six to ten years of age. In all cases there was a strong past history of rheumatism, in the majority a family history, and in three advanced chronic endocarditis. There is a striking similarity in the localities which favour the prevalence of goitre and rheumatism. Quinsy, rheumatism, and epistaxis have been observed as antecedents of exophthalmic goitre.

EDMUND CAUTLEY.

Prolonged remissions in tubercular meningitis of children (*'La Presse Médicale,'* September 2, 1905, p. 560).—**Carrière and Lhote** publish their observations on three cases in the *'Revue de Méd.'* (1905, No. 7, p. 469), which prove that if we cannot accept as a reality the definite cure of tubercular meningitis, the existence of prolonged remissions must at least be admitted. In these cases the tubercular meningitis developed at first in the ordinary fashion without any notable peculiarity of etiology or symptoms. Then, instead of presenting all the signs of asphyxia which characterise the last stage, the patients gradually were restored to life; all the symptoms and physical signs lessened; analysis of the cerebro-spinal fluid, of which inoculation had confirmed the tuberculous character, showed a less abundance of lymphocytes and an increase of polynuclear cells. In two cases this period of confirmed meningitis lasted one month, in the other seven weeks. The period of remission had a duration of four and a half months, five months, and nine months respectively. At this period a striking fact was noticed: while the bodily condition improved and various symptoms completely disappeared the psychic condition remained affected. The disposition underwent a notable change, and sadness was the dominant feature; affection was diminished and unaccustomed irritability shown. Suddenly all the symptoms, without known cause or traumatism, became exaggerated; constipation, headache, modification of pulse, etc., reappeared, and after a short prodromic stage, the entire picture of tubercular meningitis was re-formed. This second meningitis—or rather this last attack of meningitis in evolution for some months—resulted in coma and death after a course of a few days. The autopsy in one case showed lesions in two stages of development, some recent, in the shape of yellow granulations, the others old, in the form of large plaques of thickening and of meningeal sclerosis. Apparently, the primitive lesion tended towards sclerosis—that is to say, towards cure—but the cicatrix formed, or in process of formation, remained as an irritant, sealing up the bacillus for a long period, and acting as a starting-point for a new acute inflammatory attack. This latter does not appear to be necessarily fatal, and the possibility may thus be conceived of a definite cure of tubercular meningitis, but we must wait for observations and proofs of it as rigorous as those of the authors.

VINCENT DICKINSON.

The diagnosis of appendicitis in children (*'Med. Review of Reviews,'* 1905, No. 7, p. 578).—**J. H. Hess** has a paper in *'Arch. of Pediat.'* for May. Pain is at first localised to McBurney's point, but soon becomes

diffuse. Tenderness is difficult to localise and of little value. Rigidity of rectus present unusually early. Nausea and vomiting usually present a short time after onset of pain. Pulse corresponds with temperature more in children than in adults. Rectal temperatures alone are reliable; the worst cases may run their course without any. Constipation is the rule; tympanites usually a later development. Flexion of thigh well brought out by attempts at extension and flexion of the two thighs. Rectal palpation is of prime importance. Leucocyte count not so valuable as in adults, because of the great range under normal conditions. Iodophilia test of some value. Differential diagnosis: (1) Colic—Absence of localised tenderness and fevers short duration, less intense pain. In older children severe colic is always suspicious. (2) Acute indigestion—Pain less severe but temperature higher, diarrhoea more frequent. (3) Intussusception—Bloody stools and tenderness almost constant; temperature shows little or no elevation at onset; typical tumour palpable through a more or less lax abdominal wall, only moderately hyperæsthetic. (4) Acute intestinal obstruction—Onset more abrupt, pain of severer type and remissive; early and persistent vomiting, soon becoming faecal, a condition rare in appendicitis, except in later stages; shock and collapse appear earlier. (5) Psoriasis—Traumatic and associated with a deformity due to retraction of thigh. (6) Pott's disease—Absence of intestinal symptoms. (7) Renal colic—Ushered in by chill, pain more posterior: usually absence of temperature, abdominal rigidity and localised pain in right iliac fossa. (8) Biliary colic—Fever absent in uncomplicated cases, and other differential signs. (9) Perityphlitic, or perinephritic abscess—May be secondary to appendicitis and open in loin. (10) Pneumonia and pleurisy—Both may produce abdominal pain in children, associated with constipation, abdominal tenderness, and distension; but there is sudden rise of temperature, acceleration of respiration out of proportion to pulse and temperature, relaxation of abdominal walls between respirations, diminution of tenderness on deep pressure with flat of hand; possible presence of cough. (11) Tuberculous peritonitis must be considered in differentiating the more chronic forms. (12) Incipient inguinal hernia—Examination of all hernial orifices should be made in all cases of suspected appendicitis. (13) Typhoid fever—Widal reaction and low leucocyte count. The most difficult complication to differentiate is a perforating ulcer in an ambulatory typhoid case. (14) Infection of Meckel's diverticulum—Very rare, except early when still attached to the umbilicus, when the infection and distension show themselves in the scar of the cord. (15) Torsion of the cord of an undescended testicle on the right side presents many of the signs of intestinal obstruction.

VINCENT DICKINSON.

The importance of Koplik's spots in the diagnosis and prophylaxis of measles ('*La Presse Médicale*, September, 1905, No. 77, p. 616).—**André Bing**, in his 'Thesis' (Paris, 1905), expresses himself as convinced that Koplik's sign is pathognomonic and early, and thus acquires an importance both from a diagnostic and prophylactic point of view. Stress is laid on a correct description of this sign, which consists of a variable number of eruptive elements, each of which is formed by a rose-coloured areola having a small central bluish-white point. The rose-coloured spot is exactly like the ordinary measles exanthem; the bluish-white point, slightly raised, adherent to the mucous membrane, is the characteristic element which alone is pathognomonic. It is extremely minute, having a mean diameter of two to six tenths of a millimetre, and never exceeds one millimetre. Attention is

called to the dull appearance of the mucous membrane on the inside of the cheeks when Koplik's spots are present, particularly at the onset and end of their evolution. The rose-coloured spots, by coalescence and fusion into the general hyperæmia of the mucous membrane, always end by losing their individuality, which, however, is always preserved by the bluish-white points, *which never coalesce*. The exclusive locality of Koplik's spots is the jugo-labial mucous membrane; they run a definite course and then disappear: *they never ulcerate*, but sometimes leave behind them a small punctiform hæmorrhagic effusion. This description serves to distinguish them from aphthæ, thrush, stomatitis erythematopultacea of Comby, etc.

VINCENT DICKINSON.

Albuminuria and nephritis in early infancy ('*Rivista di Clin. Pediat.*,' 1905, No. 10; and '*Gazz. Med. Ital.*,' 1905, No. 50, p. 498).—**E. Ballico** reports his observations on seventy infants during their first year, suffering from various complaints, and in twenty-three of them noticed renal complications, *i. e.* in 32·8 per cent. In three cases he found simple albuminuria. Most cases occurred during gastro-intestinal affections—ten in thirty—which fact he explains by supposing that the toxic substances which are continually accumulating in the intestine must be eliminated by the kidneys, which for a certain time and in a certain measure effect this; but when too much is thrown upon them they become exhausted and react, and thus is produced simple albuminuria in some cases, but usually a true acute renal inflammation. Another question discussed is that of the existence of renal change without albuminuria, the importance of which is evident when one considers that its admission implies that a simple chemical examination of the urine is not sufficient for an exact diagnosis. In medical literature cases of chronic nephritis without albuminuria are relatively frequent, proving that no constant relation exists between the quantity of albumin and the degree of renal lesion, or even, according to Dieulafoy, that albuminuria is not a reliable symptom for the diagnosis of nephritis, as it may be temporarily or entirely absent. Absence of albumin may even occur in acute renal inflammation. Philipps, in an epidemic of scarlatina, observed cases in which albumin was absent and nephritis found at the autopsy, and Hensch a case of scarlatinous anæmia without albumin or casts where nephritis was found. Ballico, out of the seventy urines examined, in four instances could not find the least trace of albumin, although examination of the sediment showed renal cells and casts, and in two cases red blood cells and leucocytes. These four infants, aged 33 and 42 days and 7 and 12 months, suffered, one from rickets, two from dyspepsia, and the other from both these; they had no œdema anywhere, nor any manifest objective lesion or antecedent illness to cause any suspicion of renal alteration; the probable diagnosis of nephritis had to rest alone on the microscopical examination of the sediment. Cavazzani and Ferrarini, experimenting with intra-peritoneal and subcutaneous injections of chloral and pyrogallie acid, confirm the possibility of the existence of serious lesions of the renal epithelium without albuminuria, and consequently these lesions are not alone sufficient to cause the passage of albumin into the urine, and therefore its absence does not authorise an absolute exclusion of anatomical lesions of the kidney. There are cases in which, notwithstanding repeated examination of the urine, neither albumin nor morphological elements are found. There is no doubt but that both may be temporarily absent at the same time and make their appearance suddenly only in the last days of the illness at the commence-

ment of anæmic symptoms. This clearly shows the importance of accurate and systematic examination of the urine in infants, specially when one thinks that a large number of cases of chronic nephritis diagnosed *à frigore* in adults are only the after-effects of a toxic or infective complaint of infancy. The author considers that renal complications in the first year of life are very frequent on account of the incomplete structural and functional development of the kidney, and of the ease with which this organ is exposed to work that is incompatible with its delicate structure: that in the majority of cases the renal lesions are determined by affections of gastro-intestinal origin, which in young infants are very frequent and somewhat serious; that sometimes they are revealed by a simple albuminuria, but generally examination of the urine shows the existence of a true nephritis; that renal changes may exist without the least trace of albumin and without any objective symptom to call attention to it.

VINCENT DICKINSON.

The effects of chronic enlargement of the tonsils ('*Lancet*, September 30, 1905).—**H. Bellamy Gardner** maintains that chronic obstruction to respiration, even if purely mechanical and situated in the upper air passages, may produce a certain degree of those effects commonly attributed to obstructive lung and heart diseases. We have here a retardation of the venous circulation, with consequent engorgement of the systemic veins and limitation of the oxidation processes in the lungs. Gardner says that there is a particular type of youth with varicose veins, and in whom no obvious cause can be found for their appearance. He is usually about twenty years of age, thick-set, of middle height, and somewhat powerful build: he is florid in complexion and full-throated. If ether is administered, such a patient exhibits extremely laboured breathing, cyanosis, and excessive secretion of mucus. If the throat be examined, considerable chronic enlargement of both tonsils or of one tonsil will be found. The chronic obstruction to free respiration produced by the enlarged tonsils produces a certain degree of chronic enlargement throughout the systemic veins, and hence gradual dilatation of the veins in the legs takes place. So, too, in many cases of hernia, where the chief causative factor is increase in intra-abdominal pressure. The latter may very readily be brought about by chronically enlarged tonsils. Gardner has anæsthetised patients suffering from hernia where there was considerable tonsillar enlargement, and during their convalescence he has observed their breathing during sleep. Such patients snored deeply and exhibited very marked jerky abdominal movements, proving only too clearly how the hernia had been forced down by the continuous action of obstructed respiration.

JAMES BURNET (Edinburgh).

Membranous colitis ('*Lancet*, October 28, 1905).—**Hale White**, in an interesting paper on the study of sixty cases of this disease, reports that only one of these occurred under the age of ten years. The case was that of a girl, aged 4 years. She had no pain or tenderness, but for two years before she was first seen she passed huge tubular casts from the bowels every time they were opened, and she was constipated. She was pale and languid and increased very slowly in weight. She never passed any blood, and otherwise appeared perfectly well. Her surroundings were the best possible, but neither castor oil, nor high-frequency treatment, nor any particular form of dietary appeared to better the disease. Out of Van Noorden's series of seventy-six cases four were children. The writer of this article

refers to constipation as being by far the most important fact in connection with the bowels in these cases, and mentions neurasthenia as the prevailing element associated with the disease. By far the most important part of the treatment is to keep the large bowel empty. The simplest way to do this is by aperients, and in many cases castor oil by the mouth will cure the patient. It is best given in the early morning as soon as the patient wakes. If this produces nausea, sulphate of magnesium may be tried instead, or, if this is unsuitable, calomel may be given at bedtime. Should these methods fail, the large intestine should be kept empty by washing out with plain water at a temperature of 100° F.

JAMES BURNET (Edinburgh).

Xanthoma diabeticorum in a boy, aged 16 years (*Lancet*, November 11, 1905).—**Wm. J. Procter** records a unique case of diabetes mellitus attended by xanthoma. The rash was papular in character and was chiefly confined to the extensor surfaces of the upper extremities, to the flexor and extensor surfaces of the lower extremities, and to the buttocks. On the knees, elbows, and buttocks the papules were very numerous and often confluent. They were roundish, and well defined in outline when discrete. They were hard to the touch, bluish-red in colour, and at the apex of most of them was a yellow head which appeared to contain pus, but which on puncture revealed solid yellow matter. Isolated papules were present practically all over the skin and on the tongue and mucous membrane of the mouth. The eruption appeared rather suddenly, and was first noticed on the knees and elbows. It was not painful, but itched very much. There was tenderness on pressure, and sitting, except on a soft cushion, was attended with much discomfort. From time to time some of the papules disappeared, and were succeeded by fresh crops.

JAMES BURNET (Edinburgh).

A case of diaphragmatic hernia (*Lancet*, November 18, 1905).—**Edmund Cautley** had recently under his care a female infant, aged 4 months, who was admitted into hospital for consolidation of the right lung. When seen in the Out-Patient Department on the day of admission there was marked recession of the chest wall, dulness over the right base, dyspnoea, and cyanosis. When examined in the ward two hours later she appeared to be in a normal condition. She was a mouth-breather, had little cough, and the appetite was good. There was recession to an equal extent on both sides of the chest, a resonant percussion note all over, weak breath sounds over the right base, and scattered rhonchi. She had nasal obstruction, due to adenoids. Under ethyl chloride these were removed. She breathed better afterwards, but the recession of the chest remained as before. Four days later there was vomiting, and abdominal distension became marked. At night, while being fed, the infant had an attack of dyspnoea with cyanosis, and became much collapsed. Two days later a similar attack took place, after which partial dulness and weak breath sounds were noted over the right base and axilla. As the dulness became absolute an exploring needle was put in, but without result. Next day the symptoms persisted, and physical signs were now found on the left side. The vomiting continued. On the following day the note over the right chest behind had improved, the vesicular murmur was weak but distinct, and numerous rhonchi were heard on both sides of the chest. That evening collapse occurred and she died. At the post mortem the diaphragm was found to be depressed, and showed

a rent on the right side which allowed three fingers to pass easily. The hernial contents included all the large intestine and the greater part of the small intestine, the small lobe of the liver, the gall-bladder, and a part of the pancreas.

JAMES BURNET (Edinburgh).

Traumatism as a cause of appendicitis ('*Lancet*,' Nov. 25, 1905).—**F. A. Southam** makes some very pertinent remarks on this subject in a paper read before the Manchester Medical Society. Deposits of inspissated faecal matter, or even calcareous concretions, may be present in the appendix for a considerable time without causing any symptoms; but if violence is applied to the abdomen in the region of an appendix containing a faecal concretion it can readily be understood that the wall of the appendix at this spot, probably already somewhat damaged by the presence of the concretion, then becomes so injured that it suddenly ruptures, or an attack of acute inflammation is set up which may quickly terminate in ulceration and perforation. It is also possible that an appendix which is completely stenosed at some point in its course, and distended beyond with a mucoid or mucopurulent fluid—a condition which is not at all uncommon—may suddenly rupture as the result of violence applied to the abdomen, and its contents become extravasated into the peritoneal cavity. It is also probable that without the application of any direct violence traumatism may excite an attack of appendicitis in another manner: *e.g.* a severe strain, by causing a sudden and forcible contraction of the abdominal muscles, may separate or break down adhesions between the appendix and the abdominal wall, causing an extravasation of blood either into or around the appendix, or possibly producing a rupture of its wall, thereby allowing its contents to escape.

JAMES BURNET (Edinburgh).

Infantile scurvy ('*La Tribune Médicale*,' November 4, 1905).—**Comby**.—The first case had been fed for three months with oxidised milk; it had two teeth. For a month it had been pale, without moving the limbs, and cried when touched. The gums were blood-stained. The child recovered in a week when put on fresh milk with three tablespoonfuls of orange-juice every day. The second case was a plump child of ten months, that had been fed on humanised milk since it was a year old. It had no teeth, and the gums were normal. The only sign of scurvy was painful pseudo-paraplegia. Substituting fresh milk and orange-juice resulted in a cure in eight days.

T. P. BEDDOES.

Nocturnal polyuria and incontinence in early renal tubercle ('*La Tribune Médicale*,' November 4, 1905).—**Bazy**.—The case of a girl, aged 16 years, was narrated before the Société de Chirurgie of Paris on October 25, whose first symptoms of renal tubercle were the passing of an excess of urine during the night, accompanied by incontinence. It is pointed out that this combination of symptoms occurs in renal disease before any physical signs can be discovered by instrumental examination of the bladder or kidneys. They should arouse a suspicion of renal disease. Pale-coloured, cloudy urine indicates a late stage of tubercular nephritis, being due to the presence of caseation.

T. P. BEDDOES.

Congenital syphilis ('*La Tribune Médicale*,' November 25, 1905).—**Sauvage and Levaditi** describe a late case where the mother had been treated with mercury and iodide since the second month of pregnancy. The

father had been untreated for his syphilis of nine years' duration. Of the three previous children one was born at the eighth month and died on the fifteenth day; two were born dead and macerated. The child was breast-fed; at the end of the second month a rash appeared on the soles and palms, followed by a generalised papular rash and labial fissures. Notwithstanding treatment, the patient died; at the post mortem syphilitic lesions were found in the viscera. There is no relation between the intensity of the syphilis in parents and their children. With a history of syphilis at previous confinements treatment of the child should be commenced at birth.

T. P. BEDDOES.

Œdema during infantile gastro-enteritis (*Gaz. Heb. des Sciences Méd. de Bordeaux*, November 5, 1905).—**Rocaz**.—Œdema occurs in the subacute form of entero-colitis, characterised by slight recurrent diarrhœa alternating with constipation, the motions being foetid and containing mucus, the abdomen sunken and tender; the colon is felt to be hard and contracted; vomiting is frequently present. Œdema is also noticed in enteritis, with elevation of temperature, coated tongue, and vomiting; the motions are soft, colourless, with an ammoniacal odour, the abdomen distended. The intestinal disturbance is often associated with congestion at the bases of the lungs, and with cerebral symptoms simulating meningitis. When there is copious diarrhœa, œdema is rare. The œdema is due to retention in the system of chloride of sodium, and is associated with deficient renal secretion. The deficient secretion is sometimes due to renal disease; the albuminuria may be so fugitive that it may escape notice unless the urine is frequently examined. In other cases there is renal insufficiency and a scant secretion of urine. The practical conclusion is that, as this œdema is due to retention in the system of chloride of sodium, caution should be exercised in using normal saline injections when there is but little diarrhœa or the urine is scant, especially if there is nephritis, or if œdema is already present. The treatment consists in administering bland drinks, sugar of milk, and theobromine. The swollen parts should be wrapped in cotton-wool and the digestive trouble treated by repeated purges.

T. P. BEDDOES.

Megalerythema. (*Gaz. Heb. des Sciences Méd. de Bordeaux*, December 10, 1905).—**A. Moussous**.—Three cases were seen in June. A boy of twelve had a rash which first appeared two days before, accompanied by slight disturbance of the general health and some discomfort in the throat. The face was uniformly red, hot, and slightly swollen (especially the cheeks). The nose, the neighbourhood of the mouth, and chin were exempt, the rash was bounded by a wavy margin at the temples and ears, it did not extend to the neck. On the back and front of the trunk there were a few patches the size of a five-franc piece, slightly raised, bright red in colour, with well-marked margins; in places the patches had united so that their edges were polycyclical. On the arms and legs the patches were more numerous. Pressure with the finger caused the colour to disappear temporarily. The affected parts neither pricked, burnt, nor itched; there was, especially on the face, a slight feeling of tension and heat. The condition of the hands and feet resembled that of the trunk. The pulse and temperature were normal; nothing unusual was seen in connection with the mouth, throat, or conjunctiva. There was no running from the eyes or nose, the voice was normal, there were no râles in the chest and there was no enlargement of the lymphatic glands. Next day the rash on the face was paler; on the limbs the areas

had faded at their centres, leaving more or less complete circles. In a few days the face cleared, while on the limbs, wavy lines were the final stages of the patches. At various times the rash, which had almost faded, returned (when the patient was warm in bed or from extra exertion). The rash disappeared in a week, nine days after its first appearance, and there was no desquamation. The viscera were normal, the urine was repeatedly examined and was always found to be normal. Ten days after the rash appeared on the boy it appeared on a sister, without any fever or feeling of ill health: the course of events was similar: the rash on the limbs first appeared on the parts near the trunk, and later the more distal parts were affected. A servant in charge of the children became affected eight days after the second case. The author considers the condition a distinct morbid entity, intermediate between the infectious erythemas and the eruptive fevers. Various names have been given to this erythema, acute infectious, simplex, marginatum. The author refers to his paper in '*Archives des Méd. des Enfants*,' 1901.

T. P. BEDDOES.

The plantar reflex and Babinski's phenomenon in 1000 infants ('*Wien. klin. Woch.*,' 1905).—**Engstler**.—In the newly born, especially in premature children, dorsal flexion is the almost universal rule; in the third year of life plantar flexion is found as the frequency of dorsal flexion diminishes by 50 per cent. at the end of the first year. During the transition period the reflex is often proved to be absent, notably during the second year. Babinski's sign is only of importance after the second year. According to Bickel the more the cerebrum predominates in the reflex mechanism the more the original dorsiflexion reflex will become modified and produce plantar flexion, and it is interesting to note that in the adult during sleep dorsal flexion may occur.

J. PORTER PARKINSON.

Protracted remissions in the tuberculous meningitis of children ('*Rev. de Méd.*,' 1905).—**Carrière** and **Le Hôte**.—These authors present three cases in which remissions of four and a half, five, and nine months occurred, but during the quiescent stage manifestations of the pulse, temperature, psychical condition, etc., point to incomplete arrest. The last fatal attack had an abrupt onset and a very rapid course. They state that the diagnosis has been made much more certain since the introduction of lumbar puncture, and the disease can no longer be considered as absolutely fatal.

J. PORTER PARKINSON.

Lobar pneumonia mistaken for appendicitis ('*The Post-Graduate*,' December, 1905).—**Seymour Emans** relates the case of a boy aged $5\frac{1}{2}$ years, who was taken ill with slight fever and developed a general erythematous eruption and slight thoracic pain: this pain, after twenty-four hours, moved to the abdomen, which was tender, but without any rigidity of the rectus muscle. The chest was examined, but nothing abnormal discovered. Another physician stated the disease to be appendicitis and the abdomen was opened, but all the viscera were normal. The day after the operation, which was the third day of the illness, signs of pneumonia appeared at the apex of the right lung: this ran a normal course, but it was followed by empyema, for which resection of a rib was performed. The above type of case is not by any means unusual, but it emphasises again the necessity of repeatedly examining the chest in cases where abdominal symptoms are present which may possibly be due to thoracic disease.

J. PORTER PARKINSON.

Device for collecting infants' urine for examination (*The Post-Graduate*, December, 1905).—**H. Dwight Chapin** has devised a hood which fits round the vulva with a diaphragm which separates the vulval from the anal ring. This is kept in place by a bandage round the abdomen and one round each thigh. If necessary, adhesive strips may also be employed. It is made of copper, nickel plated. J. PORTER PARKINSON.

Formalin in milk (*New York Medical Times*, vol. xxxii, No. 7, July, 1905).—Formalin in milk has been found detrimental by **Engel** (*Zeitschr. f. Aertzliche Fortbr.*, No. 1, 1905), who concludes that while the addition of formalin arrests the growth of bacteria in milk for the first two days, their development is hastened after that period in room temperature. Furthermore this chemical interferes with the coagulation of the milk and has a detrimental effect upon the digestive apparatus. E. J. COWEN.

Buttermilk for infant feeding (*New York Medical Times*, vol. xxxii, No. 7, July, 1905).—Buttermilk has been used for infant feeding in Holland from time immemorial, and its use has been greatly extended since Teixeira's researches reported in 1902. **Massanek** (*Jahrb. f. Kinderheilk.*, November, 1904) studied this food during ten months on seventy-nine babies. The casein in buttermilk is suspended in a very fine state of coagulation. The amount of fat varies from one fifth to 1 per cent.. This buttermilk was obtained four hours after churning and to each litre 15 grains of rice flour and 60 to 90 grains of ordinary beet sugar were added. This is brought to a boil four times and then sterilised in a Soxhlet apparatus for ten minutes. The preparation was taken eagerly by all infants. Fewer cases of diarrhoea occurred than before this diet, nor were any bad effects attributable to it observed. In the maternity hospital cases it was given alternately with the breast and was well borne. No cases of sickness occurred among these buttermilk-fed infants. In this sterilised buttermilk the lactic acid bacteria are destroyed, but their product, lactic acid, remains. This acid has a disinfectant action and aids peptonisation. While the reaction of the milk is strongly acid, the stools are always strongly alkaline. Massanek concludes also that buttermilk can be fed to sick infants for long periods. It has the advantage of great cheapness. E. J. COWEN.

Gonococcus infection in children. (*New York Medical Times*, vol. xxxii, No. 7, July, 1905).—**E. Holt** finds gonococcus infection to be very frequent in children and one to be constantly reckoned with in institutions, especially in epidemic form: it is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. Milder forms and sporadic cases are extremely annoying because intractable; severe forms are dangerous to life through setting up an acute pyæmia or infection of serous membranes. The highly contagious character of gonococcus vaginitis requires isolation, as does also ophthalmia and acute arthritis from this cause, otherwise it is quite impossible to prevent the spread of the disease in the wards of institutions. Cases must either be excluded or quarantined. For such isolation the systematic microscopical examinations of smears from the vaginal secretion of every child admitted is essential, especially where there are purulent discharges. In the absence of microscopic examination a purulent discharge in a young child may be assumed to be gonorrhœal. Quarantine, to be effective, must extend to nurses and attendants as well as to children; and the napkins, bedding, and other

clothing of infected children must be washed separately. Where the gonococcus is found with no or very slight vaginal discharge children should also be quarantined; a great difficulty here arises from the prolonged quarantine necessary from the fact that these cases are of a very chronic character and very resistant to treatment. The danger to nurses from accidental infection, especially to the eyes, is considerable.

E. J. COWEN.

The rational use of "infant's" foods (*The Clinical Journal*, No. 682, November 22, 1905).—**G. A. Sutherland.**—The various foods on the market may be classified as: (1) peptonising powders, with or without starchy matter; (2) dried milk; (3) condensed milk; and (4) starchy foods, non-converted, partially converted, or wholly converted. Of these the starchy foods from their composition cannot be regarded as in any way resembling breast milk or suitable for infants under the age of nine months. If used by medical advice, they are only employed as adjuncts to the proper food. The chief indications for their use are three: (1) vomiting, (2) diarrhœa, and (3) wasting. Vomiting—The physician will try to find out the cause of the vomiting and more especially what is the error in the feeding. But failing to effect a cure, one may try predigested milk. Its nutritive value is probably less than that of fresh milk, but its "staying down" power in a much harassed stomach is much greater. Similarly, dried milk, either the whole milk or the remainder, after all the cream has been removed, may be tolerated and digested, especially if it is very well diluted. In other cases condensed milk may be successful; no added cream should be used and it should be well diluted to rest the stomach. Diarrhœa—An acute attack frequently necessitates the temporary disuse of cow's milk. As the cause of this trouble is often traceable to impure milk, and the active poison flourishes in that medium, the usual practice is to stop milk entirely. A return to milk food is best made with predigested, dried, or condensed milk. In addition we may add in small quantities one of the starchy foods, if fully converted, as they are unfavourable to the growth of the diarrhœa-producing organism. Wasting—With all the advances made in the treatment of infantile disorders, marasmus still remains as a fatal and puzzling malady. Probably many cases are due to a complete breakdown of the digestive organs from the use of these foods during the first few months of life. The best results are obtained by the use of a peptonising powder, and if progress is made with full predigestion we should then reduce the peptonising period to the shortest time possible that is tolerated. By this means we can educate the stomach to do a certain amount of its proper work and allow time for the atrophied cells to recover their function. In such cases also the predigested foods or the converted starchy foods may serve to increase the nutrition. The latter may be used along with cow's milk because they mechanically aid the digestion of the milk and add certain food elements which the disordered stomach can retain and digest. Whenever any of these "infant's" foods is being used the degree of dilution must be explicitly stated. When cow's milk is not obtainable, as on board ship, etc., or the milk supply may have fallen under suspicion, good condensed milk is probably the best temporary substitute for a healthy infant. In all cases in which these more or less unnatural foods are being used the following rules are safeguards both of the infant's health and the doctor's reputation. (1) In acute illness a return to natural feeding should be made before the patient is discharged. (2) In chronic illness no "infant's food" should be continued longer than is absolutely necessary. If the infant is apparently

thriving well on the food, it will in all probability actually thrive better on a fresh milk diet. (3) In all cases where a predigested or preserved food has been used for more than two weeks orange or grape juice (half an ounce) in water should be given daily to avoid the risk of scurvy. (4) Under similar circumstances the addition of fresh cream or cod-liver oil to the diet should be made as soon as possible, because the fatty element is usually deficient in all "infant's foods" (as prepared for use) and is specially necessary and essential. After the age of nine months, the risks attached to their use are not so great. They have no advantages over freshly prepared milk foods, porridge, bread and milk, puddings, etc. They have the disadvantages that they do not encourage to the same extent the use of the teeth or the development of the gastric functions. At the same time, as long as fresh milk and other natural foods are also employed there is no reason to object to their use.

E. J. COWEN.

A series of cases of icterus neonatorum in a family ('*Brit. Med. Journ.*, January 6, 1906).—**James Busfield**.—The mother, a woman of the working class, suffered from smallpox in early life, but otherwise had always been a healthy woman. She married at seventeen, and her husband, apart from occasional rheumatism, had manifested no evidence of constitutional disease. The children were all born between the mother's eighteenth and thirty-fourth years. The first, a boy, did not suffer from jaundice, but died at five months from bronchitis. The second, a girl, suffered from jaundice, but recovered. The next three all suffered from jaundice and died. The sixth labour presented no unusual feature, but by the second day the infant, a boy, began to show signs of jaundice, which gradually deepened into almost a copper colour, and death followed a comatose condition about the eighth day. The seventh, a girl, and the eighth, a boy, also suffered from intense jaundice, but recovered. These cases were treated from birth with a small dose of calomel, followed by large and repeated doses of castor oil, together with a soda and rhubarb mixture. This treatment failed to give the same happy results in the next two children. The ninth, a fine, well-nourished boy, died from jaundice on the fourth day. At the post mortem all the organs were found to be in a bile-stained condition, but otherwise no morbid condition was found. The gall-bladder contained bile, but was not distended, and the bile-duct was not occluded. The tenth, a girl, was seen six hours after birth, and was then markedly jaundiced. It died on the fourth day. The second, seventh, and eighth children, although all suffered from jaundice for a few days after birth, are now alive and very fine children. They show no evidence of specific taint. Any suspicion of syphilis being the cause of the trouble was negatived by the post-mortem appearances and also by the fact that the disease, whatever its pathology, does not show any diminution of intensity after the lapse of fifteen years, but rather tends to a more rapidly fatal issue. J. ALLAN (Edinburgh).

Convulsions in typhoid fever ('*Practitioner*, January, 1906).—**Osler**, in the course of a paper on the above, records three cases in which children were affected. The first was that of a little boy 7 years of age. The patient at 3 p.m. on the day of his admission to hospital had dinner, consisting of bread and cheese and cucumbers. After dinner he was sent out for bread, and half an hour later was found in the street in convulsions. When brought to the hospital at 5.30 he was still having slight convulsive movements of the arms and legs. The pupils were contracted and equal, the

pulse 100, of good volume. The convulsions ceased during the preliminary examination; the patient opened his eyes and regained consciousness. He was sent to the ward and was put in a warm bath. The temperature was 101° F. on admission and rose to 104° F. in the night. He had from this time on a steady temperature and all the characteristic features of typhoid fever. Rose spots were present on the eighth day. The case was a protracted one; the temperature was not normal till the forty-fifth day, and he left the hospital on the sixty-fifth day. The next was that of a little girl aged 5 years. The day before admission at 12 midnight she was heard to scream, and she went into a convulsion in which her legs jerked, her eyes rolled, and the seizure lasted from five to ten minutes. Several such attacks recurred during the night. She was dull and heavy after admission, but no further convulsions. Tuberculous meningitis was suspected, but three days after admission a positive Widal was got. Two days later 25 c.c. of clear fluid were obtained by lumbar puncture, and typhoid bacilli grew from the cultures. The patient became emaciated, and typhoid bacilli were found in the urine. The clinical symptoms, however, were more suggestive of tuberculosis than of typhoid. The autopsy showed a widespread typhoid infection. The bacilli were isolated from the gall-bladder, the liver, the urine, and the meninges. There was swelling and deep pigmentation of Peyer's patches, but no ulceration. There was also typical fresh tuberculous meningitis, with extensive tuberculous adenitis. The case was unusual as one of combined typhoid and tuberculosis. The third case was that of a girl, aged 11 years, in whom the convulsions occurred during convalescence. On the sixth day after the temperature was normal she had a severe left-sided convulsion, lasting for three hours, in which she was unconscious. Five days later she had a second convulsion, also left-sided, not followed by any paralysis. Convalescence was uninterrupted, and no damage was left by the convulsion. The prognosis is not very grave, considering the alarming nature of the complication. J. ALLAN (Edinburgh).

On the etiology of infantile hepatic cirrhosis ('*La Pediat.*,' November, 1905, p. 801).—A. Cavazzani relates the case of a female, aged 4 months. At the time when the umbilical cord fell off a red, elongated protuberance was noticed for several days, which disappeared completely when the wound cicatrised. Soon afterwards the abdomen swelled and the body emaciated. When seen by the author ascites was present and 1½ litres of fluid drawn off. There was a large mass of prominent enlarged veins in the umbilical region. The spleen was enlarged but the liver could not be felt, and seemed diminished in volume on percussion. Paracentesis was performed eight times during a period of six months, and iodide of potassium administered. Finally the ascites disappeared, and the child began to get fat, and after a year it was in excellent health. The splenic tumour, however, remained. In discussing the question whether the case was one of atrophic cirrhosis of the liver, the author draws attention to the difference between clinical and anatomical cure, the former being possible only by spontaneous dilatation of anastomatic veins or by Talma's operation. The smallness of the liver and the splenic enlargement pointed to atrophic cirrhosis rather than chronic peritonitis, which latter is usually curable with one to three paracenteses, whereas this case required eight. Interstitial syphilitic hepatitis was contra-indicated by the absence of history and by the absence of liver enlargement. With regard to chronic adhesive pylephlebitis or thrombosis of portal vein, the resemblance was closer: the umbilical

tumour stated to be a hernia might well have been due to some inflammatory process in the cord or umbilical vessels, especially as the small aperture in the umbilical cicatrix was not large enough to allow the passage of intestine through it. A phlebitis might spread along the central umbilical vein to the liver, where, according to Widerhofer, it would cause either an inflammation of Glisson's capsule or a pylophlebitis. Cases of Vaquez, Maffucci, and Virchow also show the possibility of an interstitial portal hepatitis. In the author's case the marked smallness of the liver and persistence of portal stasis, shown by the splenic tumour, are strong arguments in favour of such a condition. The state of the umbilicus and the absence of other etiological elements render it possible that the hepatic cirrhosis had its origin in an umbilical thrombo-phlebitis. Collateral circulation, favoured perhaps by renewed function of the ductus venosus of Arantius, and greater predisposition of the infantile liver to regenerative processes, are conditions which render cure more probable.

VINCENT DICKINSON.

Variations in the composition of breast milk ('*La Presse Médicale*,' 1905, n. 93).—L. Deval, in order to explain the discrepancies in the constituents as shown by analysis, undertook 161 experiments, using as far as possible samples of milk collected during twenty-four hours. As it was not practicable to deprive an infant of the breast for a whole day, he adopted the following procedure: At each feed 10 grammes were taken at the commencement, in the middle, and at the end. The amount of 30 grammes thus taken were added to the amount absorbed by the infant, ascertained by weighing before and after the feed. This operation was repeated at each feed during twenty-four hours consecutively, a milk thus obtained representing the mean composition of the milk furnished during that period. Where this could not be done, three samples were taken in the same manner at the second feed of the day, and the amount calculated from these observations. In certain individuals the milk was found to be constantly richer than in others, the fat varying from 30 to 50 grammes per litre, the casein from 6 to 14, and the lactose from 64 to 79. He also found that the quantities of fat and lactose increased with the age of the milk, while that of the casein diminished thus: during first ten days, fat 33, casein 18, lactose 66 grammes per litre; During the second and third ten days, fat 40, casein 11, lactose 71; after thirty days, fat 43, casein 9.5, lactose 74. A short time after parturition the milk is very rich in casein, which rapidly diminishes in a few days, while in the same period there is a *slow* increase of fat and lactose; later these variations occur in the same fashion, but much less rapidly, and after the first month they become insignificant. His observations confirmed the great variety in the composition of the milk. Psychic causes had a more or less marked effect; there was a slight relationship between the nutrition of the nurse and the quality of her milk. The infant influenced the quantity secreted, it being more abundant when more was required. Milks usually abundant are decidedly less charged with nutritive elements than those secreted in lesser quantity. The age of the milk and the individuality of the nurse were, however, the factors chiefly concerned in the variable composition of breast milk.

VINCENT DICKINSON.

Chronic colitis in children ('*Lancet*,' January 13, 1906).—Cautley recently read a paper before the Medical Society in which he divided cases of chronic colitis into three groups, excluding the tuberculous variety: (1) Catarrhal colitis, which includes the so-called "mucous" form, and is

characterised by loose stools and the presence of masses of mucus, looking like slime, jelly, or white of egg. In this variety blood is usually absent. (2) Ulcerative colitis, follicular and catarrhal. The former is merely a sequel of acute ileo-colitis in infants. The stools are very offensive and contain blood, with a variable amount of slime. (3) Membranous colitis, which is a very rare form. The prognosis of chronic colitis in children is, on the whole, favourable. As regards treatment, diet should be nutritious in quality, without leaving much waste matter (such as albumin and water). Careful nursing and hygiene are essential, as are also rest in bed in severe cases, attention to the general health, and drug treatment of the mouth and anus. He advises salines and castor oil as the most suitable purgatives. Bismuth compounds and creosote may be given by the mouth. Irrigation of the colon with salines, boric acid, tannic acid, and silver nitrate is also recommended.

JAMES BURNET (Edinburgh).

Pyrexia of obscure causation in children (*'Lancet,' January 20, 1906*).—**G. F. Still**, at a meeting of the South-West London Medical Society, read a paper on this subject. He referred to the nervous instability of children, a condition which affected not only the temperature but also the cardiac and respiratory rhythm, the renal function, and, in fact, every function in the body. Cases of recurrent attacks of pyrexia without any obvious cause were probably of nerve origin. He discussed the relation of diet to pyrexia, especially with regard to carbohydrate food, and also pyrexia due to bowel conditions and tuberculosis of the glands in the mesentery and mediastinum. The throat and ear as sources of pyrexia in childhood were referred to, and he stated that otitis media might sometimes be present without diagnosis being possible. Dentition as a cause of fever was dwelt on. In conclusion, the writer urged the importance of examining the urine, acute pyelitis being sometimes a cause of fever in infancy, which was very apt to be overlooked.

JAMES BURNET (Edinburgh).

Puericulture at Creusot's (*'Académie de Médecine,' July 25, 1905; 'Gazette des Hôpitaux,' 1905, p. 1002*).—**Variot** and **Pinard** give an interesting account of the progress made in this subject at the Creusot establishment during the past ten years. Thanks to the efforts directed towards the hygiene of infancy, and particularly in the direction of maternal suckling, the mortality during the first year of life has fallen by a third in the past ten years.

A. ERNEST JONES.

The training of nerve-centres in children (*Chelsea Clinical Society, February 20, 1906*).—**Eric Pritchard**, in a paper on the above subject, maintained that the lower nerve-centres which presided over the organic functions were amenable to educational discipline in the same way that the intellectual and higher cerebral centres, both in degenerate children and in those of superior intelligence, could be improved in functional efficiency by appropriate teaching. He suggested that in the physical training of children, whether the training was for the purpose of improving the motor, digestive, circulatory, or other organic functions of the body, our attention should be directed towards the promotion of efficient and regular habits in nerve-centres, and that we should discount considerations of the organs themselves, which were merely the servants of the central nervous administration. Nerve-cells were the only elements in the reflex arc which were capable of training or of profiting by past experience; in fact, they

had a sort of subconscious memory which enabled them to repeat more or less accurately the parts they had played before. It was therefore of the utmost importance that when in infancy or childhood a nerve-centre came into activity for the first time its initial acts should be performed in an orderly and efficient manner, for its subsequent behaviour would depend on the manner in which these were carried out. Too much attention could not, therefore, be bestowed on the early training of these centres, and to this end certain principles should be observed. First, they should be educated in the natural order of their development; when forced out of their due order neuroses were apt to supervene, as, for instance, when a child was artificially taught the finer muscular co-ordinations before it had acquired control of the coarser muscular movements. Secondly, owing to the impressionability of developing nerve-centres, supermaximal stimulation should be avoided, otherwise these centres would explode with great violence, and the energy liberated would overflow to contiguous centres. Thus over-stimulation of the centres which presided over the functions of gastric digestion by the presence of too heavy a curd of casein in the stomach, might, and often did cause general convulsions. The disturbance of equilibrium thus engendered in the gastric centres would seriously interfere with the processes of digestion in the future. All nerve-centres should be trained in a school of graduated stimulation, commencing with that which was weak, and proceeding to that which was strong. The sensitive nerve-mechanism which presided over the motor functions of the bowels was frequently completely deranged in infancy by the employment of powerful purgatives, enemata, or glycerine suppositories; these powerful stimuli dulled the sensibility of the nerve-centres concerned in the act of defæcation to such an extent that the presence of fæces in the colon or rectum was subsequently an insufficient stimulus to produce an action of the bowels. Thirdly, owing to the inherent tendency of nerve-cells to assume periodic or rhythmical habits of activity it was of importance that the periodicity of organic function, such as those of digestion, defæcation, sleep, etc., should be of a physiological character and favourable to the well-being of the individual. Regularity in these habits in later life depended on the nature of their early education. Neurotic and degenerate children were difficult to train for the reason that their nerve-centres either exploded on very slight stimulation or easily became exhausted and refused to respond at all; such children should be educated in an environment of subminimal stimulation.

VINCENT DICKINSON.

Dermoid tumour of the mediastinum (*'Lancet,' February 3, 1906*).—**George Carpenter** gives the history of a female child aged 2 years. Six months before admission to hospital she had had pneumonia. On admission she was cyanosed, and could not lie down. The respirations were rapid, and there was pain in the side. There were evidences of rickets present. The right chest was dull from apex to base in front. Over the apex tubular breathing was got, but the breath-sounds became fainter and fainter below this level. At the left side anteriorly there was dullness, and tubular breathing above and below the clavicle. There was absolute dullness over the right chest behind. The breathing was bronchial above the scapular spine, and elsewhere vesicular and diminished, but nowhere absent, not even at the extreme base. At the left apex dullness and tubular breathing were got. The heart-sounds were best heard over the fifth rib some little distance outside the nipple line, and accompanying the first sound was a systolic bruit.

The liver was displaced, its free edge was felt four fingers' breadth below the costal margin in the nipple line, and there was a distinct depression between the liver and the costal margin. Aspiration was performed, and $13\frac{1}{2}$ ozs. of pale straw-coloured fluid were withdrawn. Thereafter the chest became resonant behind. In front it remained absolutely dull. The patient was again explored, just outside the right nipple, and the syringe became charged with blood. The heart and liver now receded. The front of the chest was, however, found much bulged, and on Röntgen-ray examination the whole of the right lung was opaque. The child rapidly improved. On



leaving hospital the chest was still dull in front on the right side, and the cardiac impulse was in the fifth interspace. She returned four weeks later cyanosed and moribund, and died soon after. On post-mortem examination a cyst was found in front of the right lung, and it also projected into the anterior mediastinum. The right lung was greatly compressed. On section the tumour was found to consist of a considerable number of cysts. Between the cysts, running from above downwards, was a partition composed of fat and fibrous tissue, and containing a few calcareous masses. In the larger cyst were found sebaceous-looking material and short hairs.

JAMES BURNET (Edinburgh).

Pathology.

Spirochæta pallida in hereditary syphilis (*Société de Biologie*, November 4, 1905; '*Gazette des Hôpitaux*,' November 7, 1905, p. 1506).—**Levaditi** and **Sauvage** read two papers on this subject. They show that the spirochætæ may be found in the heart's blood of children who have died of hereditary syphilis, that the organisms travel towards the surface of the skin, not only in the pemphigus vesicles, but also in apparently normal skin, and that their number is proportional to the intensity of the visceral lesions. Justin de Lisle at the same meeting gave a detailed account of the organism in question.

A. ERNEST JONES.

Spirochæta pallida in hereditary syphilis (*Société de Biologie*, November 25, 1905; '*Gazette des Hôpitaux*,' November 28, 1905, p. 1615). **Levaditi** and **Salmon** conclude from their researches that (1) in a fœtus which has died of this disease the spirochætæ are found in greatest numbers in the lung, suprarenal capsules, liver and skin; (2) they are situate in the interior of the cells; (3) in the liver the perivascular grouping of the organisms plead in favour of their arrival by the vascular route; (4) their considerable number in the protoplasm of certain important organs explains the gravity of the affection, which constitutes a true acute spirillosis.

A. ERNEST JONES.

Case of typhoid arteritis in a girl (*Société Méd. des Hôpitaux*, December 1, 1905; '*Gazette des Hôpitaux*,' p. 1650, 1905).—**Rist** and **Ribadeau-Dumas** give a full account of this case. Gangrene of a lower limb was caused and amputation had to be performed at the upper third of the thigh. On examination of the artery, an endo-periarteritis was found and typhoid bacilli grown in pure culture. Up to the present it has been supposed that such accidents were due to a secondary infection, but now we must recognise that they may be due to a direct infection by the typhoid bacillus in the course of typhoid fever.

A. ERNEST JONES.

Therapeutics.

The treatment of diarrhœa in children ('*Therapeutic Gazette*,' November 15, 1905).—**Kerley** states, in the '*Med. Record*,' July 22, 1905, that there are four drugs which may be relied on in diarrhœa. These are castor oil, bismuth, calomel, and opium. Castor oil is given at the onset by preference, the calomel being used only when oil is not retained. It is given in $\frac{1}{10}$ to $\frac{1}{20}$ gr. doses at half- or one-hour intervals until 1 gr. has been given. Bismuth subnitrate is given in not less than 10-gr. doses at two-hour intervals. In order to be of service, it must produce black stools converted in sulphide. If not, precipitated sulphur (1 gr.) must be added to each dose of bismuth. Continue the large doses until the child is ready for milk and then diminish it one half until full milk feeding is given or constipation ensues. Opium must be used with caution and when there is tenesmus, with frequent, large watery stools. It should never be given in combination with other drugs, for when the stools are reduced to one in four or five hours it should be lessened or not given. If it is used injudiciously, in too large doses or too long, the cessation of the stools will be followed by a rise in temperature,

prostration, and other evidences of systemic poisoning. The author prefers Dover's powder ($\frac{1}{4}$ – $\frac{1}{2}$ gr.) every two or three hours for a child one year of age. Irrigation of the colon has been overdone. The cases which are benefited are those which have a moderate number of green, loose, mucous stools, with or without blood. In short, the cases to be washed out are those which have something to be removed, and usually once in twenty-four hours is sufficient, and not oftener than once in twelve. He generally employs normal salt solution, using it warm as a rule. He has used it as cold as 60° F. and in marked prostration as high as 110° F. The irrigation is carried out with a soft rubber catheter (No. 14 E) attached to a fountain syringe. The water is passed in slowly until the colon is filled. This in a child eighteen months old will require 24–30 oz. of water. When this, or a lesser amount, at least one pint, has passed in, allow the solution to run in and out, at the same time elevating the bag of the syringe three or four feet above the patient's body.

E. J. COWEN.

Hydrotherapy in the treatment of capillary bronchitis ('*Blätter für klinische Hydrotherapie*, No. 4, 1905).—Schopohl places the child in a bath at blood heat, and increases the temperature very gradually to 110° F. The bath lasts for ten to twenty minutes. The patient is then taken out, but not dried, and wrapped in a sheet, over which a linen covering is then placed. The child is allowed to lie thus for an hour or two. He is then taken out of the covering and his chest is smeared with warm oil and then enveloped in oiled silk. Rapid improvement usually follows, but in bad cases it may be necessary to repeat the process twice a day. Inhalations of warm moist air may be used as an additional aid to treatment. As a result of Schopohl's method, we find diminution of the pulmonary congestion, increased excretion of urine, relief to the arterial blood-pressure and to the rapidly acting heart, and a general improvement in the patient's condition.

JAMES BURNET (Edinburgh).

Otology, Laryngology and Rhinology.

Laryngeal complications of impetiginous stomatitis ('*Gaz. Heb. des Sciences Méd. de Bordeaux*, December 10, 1905).—Rocaz O. Leuret.—An out-patient, 19 months old, was seen with white patches on the mucous surface at the angles of the mouth. The skin was involved over a triangular area with the apices towards the middle line; the surfaces were ulcerated and covered with thin, whitish false membrane; the condition was evidently one of perlèche. Tincture of iodine was applied. Two days later the areas had extended to the cheeks, which were covered with crusts. On the inner surface of the lips and on the tip of the tongue there were small ulcers covered with thin, grey, very adhesive false membrane. The pharynx and palate were normal, the tonsils were not red; the child was generally out of health and cried when food was offered to it; the temperature was normal. A mouth-wash of peroxide of hydrogen and a boric acid lotion were ordered. On the fourth day there was difficulty in inspiration, and locomotion of the larynx was noticed. It was stated that on the previous day the voice had first become hoarse, and that there was a raucous, croupy cough. There was no temperature, the tongue was covered with small patches of impetiginous stomatitis almost to the base, the pharynx was normal. The angles of the mouth were almost healed. The child was

admitted into hospital on account of the laryngeal symptoms. The embarrassment of inspiration and movement of the larynx disappeared next day with the use of an antiseptic mouth-wash and warmth to the neck. On the following day stomatitis began to fade, and was cured after being in hospital four days. No bacteriological examination was made, but the case was originally perlèche, then became secondarily impetiginous, and involved the larynx, the pharynx being exempt. Had the case been first seen when the larynx was involved it might have been erroneously diagnosed as diphtheria. An out-patient, aged $2\frac{1}{2}$ years, had been ill five days, and for three days complained of pain in the mouth. On the mucous membranes of the cheek there were four ulcers in contact with the canine teeth; there were shallow ulcers on the edge of the tongue in front, the back of it being unaffected: on the posterior part of the palate near the median line there were three small ulcers. The pharynx was normal; the voice was hoarse; there was slight cough, and coughing was painful. The respiration was unembarrassed, without undue mobility of the larynx or retraction of the epigastrium. Cultures from the pharynx only showed staphylococci. Oral antiseptics in two days resulted in the voice becoming clear; the cough was slight and a few râles were heard, nasal respiration was embarrassed, and there was a mucous discharge from the nose, in which staphylococci were also found. On the fourth day the child returned cured.

T. P. BEDDOES.

Arrested development of the nose (*Journ. de Med. de Bordeaux*, December 10, 1905).—**L. Hirigoyen** describes a monster the characteristic deformity of which was atrophy or non-formation of the median parts of the face. The eyes were separate, but very close together; the nasal apparatus was represented by a little tube situated above the orbits and having at its extremity a small orifice ending in a *cul-de-sac*. On putting a finger into the mouth the vault of the palate was found to be replaced by a bony projection which appeared to be formed by the ethmoid and bones of the nose. The left ear was reduced to a little knob of skin, but the rest of the body was well formed.

HAROLD BARWELL.

Empyema of the frontal sinus secondary to acute infectious disease in children (*Arch. Internat. de Laryngol., d'Otol., et de Rhinol.*, January, 1906, p. 315).—**G. Cholle** recorded two cases of this affection, which is very rare in children, to the Society of Pediatrics of Moscow; the reference given above is to an abstract of his paper. Case 1, child aged 10 years, had in rapid succession measles, scarlet fever, bronchitis, and fœtid aural discharge: on the twenty-fifth day of the illness exophthalmos and swelling of the eyelids appeared on the right side. This was attributed to thrombosis due to caries of the temporal bone; the mastoid was opened, but death occurred from purulent meningitis. Post mortem an empyema of the right frontal sinus was found. Case 2, a girl aged 9 years, a few days after the onset of scarlet fever, had fever of the pyæmic type, swelling of the right frontal region, and violent headache. Death from purulent meningitis secondary to empyema of the frontal sinus.

HAROLD BARWELL.

Surgery.

Scarlet fever (*Arch. of Pediat.*, 1905, p. 754).—**C. Herrman** summarises his observations on cases of scarlatinal infection through open wounds. The incubation period is short. There is a characteristic change

in the appearance of the wound after infection. Lymph-glands become enlarged. The rash usually begins at the point of inoculation. Throat symptoms are mild, without exudation or marked submaxillary adenitis. After the rash has reached its height, the wound rapidly improves in appearance. Desquamation usually begins around the wound. Extra-buccal infection should be looked for in cases of unusually short incubation, slight throat symptoms, and unusual distribution of the rash. Children exposed to infection should have open wounds, including vaccination, covered by protective dressing. The incubation period of scarlet fever depends on virulence of infection, receptivity of the individual, and the portal of entry. An individual, immune in the ordinary way, may contract the disease by direct inoculation.

EDMUND CAULTEX.

Hydronephrosis in a child aged 3 years (*Gaz. Heb. des Sciences Méd. de Bordeaux*, November 12, 1905).—**Puyhanbert**.—For six months a fluctuating tumour, which steadily increased in size, had been noticed in the outer portion of the right hypochondrium. From its situation it might have been an hydatid of the lower surface of the liver. The general health was good; there was neither quantitative nor qualitative change in the urine. Exploratory puncture drew off a clear, odourless fluid, which was not analysed. Lateral laparotomy exposed an extra-peritoneal cyst, from which a quart of clear fluid was withdrawn. After evacuation of the dilated renal pelvis the pedicle was ligatured and the kidney removed. The ureter was occluded some millimetres from the kidney; from the state of the kidney, with only a six months' history, the obliteration could not have been congenital. Recovery was complete on the tenth day. T. P. BEDDOES.

Kidney grafting (*Gaz. Heb. des Sciences Méd. de Bordeaux*, November 12, 1905).—**Princetau**.—A child was admitted into hospital seriously ill with osteomyelitis of the femur and albuminuria with dropsy. Four operations resulted in improvement. Suddenly facial paralysis was noticed, and general œdema and vomiting of all food; barely five drachms of urine were passed daily. The one kidney was incised and two pieces from the kidney of a rabbit were implanted in it. The immediate result was good. The vomiting stopped; for a fortnight a litre of urine was passed *per diem*. On the sixteenth day the child died from pneumonia. Both kidneys were large and white; there was a nutmeg liver and a soft spleen. The grafts seemed to have taken; it was proposed to determine the nature of the adhesion by microscopic examination.

T. P. BEDDOES.

Polypi of the rectum (*La Tribune Méd.*, December 9, 1905).—**Judez O. Baldenweck**.—Emphasis is laid on the fact that the polypi may exist for some time and attain an appreciable size before causing any obvious symptom, and that advice may not be sought till strangulation had occurred. In one case an infant aged 2 years and 4 months was seen with a strangulated polypus that had been first noticed the same day. The tumour was round in shape, the size of a hazel-nut, with a stem as thick as a goose-quill. There was no history of pain or hæmorrhage, but only of occasional streaks of blood and mucus in the motions. The second case was a child, aged 7 years, who had been subject to anal irritation and slight hæmorrhage. After an effort at defæcation a polypus was protruded from the anus, which bled freely, and when seen shortly afterwards was found to be ecchymosed; it was the size of an almond. In both cases the polypi were ligatured and excised.

T. P. BEDDOES.

Strangulation of an infantile umbilical hernia ('*Lancet*,' January 13, 1906).—**Philip Turner** describes the case of a female child aged 17 months, who suffered from umbilical hernia which appeared soon after birth. Under an anæsthetic, after taxis had proved unsuccessful, an incision was made, and the sac was separated and then opened. No bowel was found, but a piece of tightly constricted omentum had to be divided before any healthy omentum could be withdrawn from the abdominal cavity. The omentum was then ligatured and removed, the sac was cut away, and the gap in the abdominal wall closed. Convalescence was uneventful. There are three varieties of umbilical hernia, two of which occur in children: (1) The congenital umbilical hernia, in which a loop of intestine is found outside the abdominal cavity projecting into and distending the proximal part of the umbilical cord. (2) The infantile umbilical hernia, which is due to a yielding of the umbilical cicatrix, and may appear very soon after birth. Strangulation of an umbilical hernia in a child is a rare occurrence, especially in the infantile form as described above. In this case the neck of the sac was extremely narrow, not more than one third of an inch in diameter, and the margin of the ring was very sharp.

JAMES BURNET (Edinburgh).

Surgical intervention for intra-cranial hæmorrhages of the newborn ('*Amer. Journ. of the Med. Sciences*,' October, 1905).—**Harvey Cushing** points out that a newborn child will stand a cranial operation if proper care to avoid shock is taken. He has operated upon four cases of intra-cranial hæmorrhage. In one of the cases the diagnosis pointed to a basal fracture and laceration of the cavernous sinus. There was protrusion of the eyeball and swelling and œdema of the lids and conjunctiva. Operation seemed necessary. A large bone-flap was turned up, and all blood-clots that could be reached were washed away. Another bone-flap was turned down on the opposite side to enable more blood-clot to be reached and dealt with in like manner. No drainage was employed, but the flaps stitched down again. All the symptoms disappeared, and the child appeared to make a good recovery.

P. LOCKHART MUMMERY.

Congenital stenosis of the urethra ('*Med. Record*,' December 23, 1905).—**Faxton E. Gardner** says that congenital stenosis of the meatus is not so uncommon as is often supposed. The commonest variety described is that of partial atresia of the external meatus. The author, however, believes that congenital stricture of the upper urethra is also to be met with. He describes the case of a boy, aged 10 years, who was troubled with nocturnal incontinence. An examination of the urethra revealed the presence of a stricture in the membranous urethra, and after this had been treated with bougies the incontinence was cured. The total number of cases collected up to the present from all sources is 110. Congenital stenoses in the male posterior urethra are very rare and in women unknown. The anterior urethra is affected in nearly all cases. The anatomical conditions met with may vary from a mere band to complete atresia which is incompatible with and usually associated with other severe congenital defects of development. The stricture may be either single or multiple. Bardinet records a case where there were five such strictures. In Stein's case the whole of the urethra was strictured. The meatus is the commonest situation for the stricture and after this the bulbous portion of the urethra, the third commonest place being at the posterior end of the fossa navicularis. Congenital stenoses of the urethra are very frequently associated with acute deformities such as phimosis, hypospadias, dilatation of the urethra, diverti-

cula, etc. The author states that these congenital strictures are a common cause of nocturnal incontinence and an imperious desire to micturate during the daytime. An examination of such cases often reveals the presence of a congenital stricture. He points out that often cases of congenital stricture do not come under medical observation until the patient has reached adult life, when owing to an attack of retention medical aid is sought. The medical man in such a case invariably attributes the condition to gonorrhœa even though there be no such history and the possibility of congenital stricture is not thought of. The treatment of congenital stricture consists in dilatation with bougies.

P. LOCKHART MUMMERY.

Congenital stenosis of the pylorus (*'Medical News,' December 30, 1905*).—**Charles S. Scudder** points out that cases of this affection are much commoner than has been supposed, but that until recently they have not been recognised. He says that the first case was described in 1788 by Beardsley of Newhaven. Among the symptoms of this condition he lays special stress upon the sudden, unexpected character of the vomiting, and upon the invariable absence of bile in the vomit. The meconium-like character of the fæces, and the fact that this character of the fæces persists he also considers of importance in making a diagnosis. Of the cases he has collected he gives the following results of treatment. Pylorotomy was done in one case, but the child died. Loreta's operation was done in seven cases with four deaths. Gastro-enterostomy was done in forty cases with nineteen deaths. In one case operated upon by posterior gastro-enterostomy on the fourteenth day, the child lived and increased in weight from 8·2 lbs. previous to operation to 14 lbs. three months later. In discussing the operative technique great emphasis is laid upon the importance of light handling of the tissues during the operation. Only the gentlest touch should be used, and anything in the way of dragging on the stomach carefully avoided, both on account of the great increase of shock resulting from rough handling of the tissues, and also because tympanitis is more likely to occur if the bowel is in any way damaged. Attention is also drawn to the importance of careful feeding. The milk feeds should at first be very small and gradually increased as the powers of assimilation increase.

P. LOCKHART MUMMERY.

The treatment of acute intussusception (*'The Practitioner,' February, 1906*).—**Thomas Guthrie**, in summing up the results of treatment by the injection of fluids or air into the bowel, shows that in 34 per cent. of the cases it is certain to fail in reducing the intussusception. In the cases where it fails it seriously prejudices the chances of a successful operation, and its mortality is greater than that of immediate operation. The results of operation show that in those cases where the operation is performed early a very fair measure of success is obtained, but that in the cases where reduction is impossible owing to the condition of the intestine there is a very high mortality. A few cases have been recorded where resection of the damaged bowel has been followed by recovery, and it is worth attempting. He lays the greatest stress upon the importance of operation at the earliest possible moment, and quotes Gibson's figures, which show that whereas 94 per cent. of cases submitted to laparotomy within the first twenty-four hours reduction was possible, reduction was only possible in 61 per cent. of those cases operated upon on the third day. In conclusion, he states that all the available evidence indicates that every case of acute intussusception, apart from those advanced cases in which the shock of an operation would certainly be fatal, immediate abdominal section is the proper treatment.

P. LOCKHART MUMMERY.

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ON PLEURAL EFFUSIONS, SEROUS AND PURULENT.*

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FOR the purpose of this discussion and as a contribution to the study of pleurisy in childhood, I have searched my note-books and I have reviewed the clinical histories of 192 cases which have passed through my hands during the last few years. Of these 192 cases there were 115 males and 77 females.

The serous variety totalled 85—48 on the right side, 36 on the left, and 1 double.

The purulent effusions numbered 107—51 on the right side, 54 on the left, and 2 double. No less than 116 cases were 5 years of age or under, 77 of them being empyemas.

Of those with serous effusions 7 died, and of those with purulent effusions 32 died, 2 of them with lardaceous disease.

Of the 7 former 1 suffered from mediastinal new growth, 1 from pyæmia (bone), 1 from pneumonia, 3 from tuberculosis, and 1 died from exhaustion after several aspirations.

* Read before the Society for the Study of Disease in Children at a Special Meeting for the purpose of discussing pleural effusions, serous and purulent, December the 15th, 1905.

Of the 31 deaths from empyema there were 5 cases of pneumonia on the affected or on the healthy side, 2 had peritonitis in addition, and 1 tuberculous meningitis; 4 died from tuberculosis in one form or another; 1 from scarlatinal nephritis and exhaustion; 1 from interstitial nephritis; 2 from exhaustion; 1 with cheesy tracheal glands; 2 died suddenly; 2 died out of hospital; 2 had lardaceous disease; 1 was undiagnosed (coma and convulsions); 1 had pus in the abdomen; 1 pyæmia; in 4 post mortem was declined; 1 died of (?) peritonitis; 1 had foetid pus; 1 succumbed on the operating table; 1 from washing out the cavity (convulsions and high temperature); 1 from abscess and gangrene of the lung; and 1 from multiple abscesses of the lung.

In a female, aged 2 years, with double empyema, and during life a swollen left hand and forearm and œdematous chest-wall, there was found a thrombus of the left innominate vein extending to the subclavian and internal jugular veins; she also had general tuberculosis.

In a boy, aged 3 years, with empyema, there was free air in the pleural cavity. The right lung was collapsed, the pleural sac being divided into two by dense adhesions provided with openings. A small abscess cavity in the lower lobe of the lung filled with caseous material communicated with a bronchus, but not with the pleura.

In a boy, aged 14 months, with empyema, the left lung was collapsed. In the left lower lobe of the lung, in which there was a small localised abscess, was an orifice connected with a superficial cavity and indirectly with the bronchi. On the under-surface of the lung were three small apertures communicating with a network of ragged cavities partially separated by bridges of shreddy tissue, and every here and there were portions of solid lung-tissue becoming gangrenous.

A male, aged $3\frac{3}{4}$ years, had a chocolate-coloured effusion which had not been detected, on the side opposite to the empyema; both lower lobes of the lungs were collapsed, and tuberculous, together with a condition of general tuberculosis.

A child, aged 6 years, cured of an empyema, subsequently died of tuberculous meningitis. The adhesions in the pleura were tuberculous, but there were no tubercles elsewhere.

Many of the cases commenced with a sudden sharp febrile attack; some few gave a history of a preceding exposure to wet and cold—viz. 10 in 101 cases. Occasionally injury in the shape of a fall or other traumatism was apparently the starting-point.

Many cases originated in pneumonia, broncho-pneumonia, bronchitis,

and pertussis followed by pneumonia. In many children a rheumatic or a tuberculous family history was obtained. Scarlatina, measles, rheumatism, tuberculosis of the lungs, typhoid fever, diphtheria, mumps, and varicella were the starting-points in others.

Symptomatology: initial stage.—For some not obvious reason, or following an exposure to wet and cold and usually in sequence to one of the conditions previously enumerated, the child is suddenly seized with the usual febrile symptoms accompanied by a temperature of 101° F., 102° F., 103° F., or 104° F., or even more.

There may be headache, vomiting, lassitude, shivering, drowsiness, or even convulsions. Fever is of variable duration—a day or two, perhaps a week, or even a month. Rarely there is delirium or, rarer still, a typhoid state.

Pain may be absent or very slight; occasionally it is acute and the affected side is tender. But pain may be complained of elsewhere, quite away from the seat of mischief. Thus it may be felt at the corresponding shoulder, be referred to the sternal, epigastric, umbilical, or hypogastric regions, be felt on the *opposite* side, or even in the limbs. In one child under my care with left-sided pleurisy it was experienced down the corresponding arm.

Sometimes there are profuse sweating and diarrhœa, but these symptoms belong rather to purulent pleurisy, though they are not confined to this variety.

The respirations are increased in frequency and are accompanied by laryngeal grunting and sometimes by dilatation of the *alæ nasi*. The pulse respiration ratio is also altered. When effusion is abundant the pulse becomes small, frequent, and irregular.

Cough is a feature and is frequent, short, hacking, and dry. Orthopnœa may occur during coughing, and cyanosis become marked at that time. In such a case the effusion of fluid may be very rapid and will be found to be copious. When effusion is abundant the pulse is small, frequent, and irregular. In young infants collapse is a noticeable feature, and in their case wasting is rapid.

Not infrequently the initial stages of the illness are not very pronounced, and the child is brought to the doctor for advice because it is wasting or because it has a poor appetite; on the other hand, its condition may be so weakened by the complaint that it has to be carried into the consulting-room, or it drags its feeble limbs there with difficulty. By physical examination alone can the nature of such a case be determined. In many instances pleurisy is not suspected, and is only discovered on making the usual routine physical examination. Pleurisy is often overshadowed by the general disease.

Thus in pneumonia, broncho-pneumonia, and bronchitis the detection of a friction sound by the stethoscope may be the sole evidence of this complication. In some cases the physical signs of pneumonia are rapidly followed by those of pleural effusion, and then often of a purulent type. In many instances pleurisy though present escapes detection by the methods of diagnosis at our disposal; friction cannot always be heard. Friction may possess the usual unmistakable characters, but it may be audible as a dry rhonchus or a moist râle, or be heard to-day and gone to-morrow. Friction is dependent upon the depth of respiration, and it is also modified or annulled by the supine or the erect position. Friction may be heard anywhere over the chest, but the favourite areas are in the neighbourhood of the nipples, in the axillary regions, and about the scapular angles. Friction fremitus also may be detected sometimes, but it is not usually to be felt.

Fluid effusion stage.—The disease may not pass beyond the initial stage, but this is usually followed by that of fluid effusion. Fluid effusion occurs clinically under several types.

In one type, not uncommon, there are the usual physical signs of consolidation of the upper or the upper and middle lobes of the lung, together with deficient vesicular breath-sounds over the lower lobe; *rarely* are the breath-sounds annulled even at the extreme base. Sometimes the breath-sounds are cavernous over the upper part of the lung, but cavernous breathing is often to be heard over solid areas of a simple nature in children's lungs. Consolidation of the lung may be due to its collapse from fluid pressure or to croupous pneumonia, and if to the latter a trace of albumin may sometimes be detected in the urine in the early stages of the disease. To percussion there is fluid dulness and fluid resistance, but it is important to remember that both of these signs may occur with a solid lung, though this is not usual. On the other hand, because the dulness is not of a character to suggest fluid it does not follow that fluid is not present. The percussion note may be what may be described as deficient resonance, and it is very important to realise that *stomach resonance* may be obtained as high as the angle of the left scapula and thus obscure the physical signs. Percussion should in all cases be light; the chest walls are yielding, and it is easy to displace the fluid and reach crepitant lung. On the healthy side the breath-sounds are extra-puerile (not bronchial, as sometimes called), and the chest resonance is frequently subtympanic.

In another type the affected side of the chest will be found to be dull from apex to base, with, in some cases, good but distant

vesicular breath-sounds, sometimes with moist râles; or with distant tubular breathing, perhaps heard only on taking a deep breath and with expiration alone. With extreme effusion the apex of the corresponding lung may be resonant or hyper-resonant, the breathing clear but distant, expiration being prolonged and unduly audible in comparison with inspiration. Dulness to percussion does not usually extend to the spine. A sector-shaped area of resonance may be obtained over the root of the lung and its immediate neighbourhood. As in the first type, the breath-sounds on the healthy side are extra-puterile and sometimes accompanied by moist râles.

In a third type there is dulness over the lower lobe only, with deficient vesicular murmur. Sometimes the breath-sounds over the dull area are distantly tubular in character. In either variety there may be loud tubular breathing at the upper limit of dulness, and possibly associated with this friction sounds. Sometimes at this upper limit of dulness friction is heard alone, sometimes pneumonic crackling only. Skodaic resonance is not infrequently to be obtained over the corresponding apex in front, above the clavicle or below it, or over both areas, and sometimes over the apex behind. Skodaic resonance is not diagnostic of fluid; it sometimes is met with in apex consolidation and sometimes with basic consolidation.

In a fourth variety—and this is a very uncommon type—the physical signs are those of pneumo-thorax. I have notes of three cases, and the following is a good example of this condition:

The patient, a hollow-eyed boy, aged 3 years, was admitted into hospital with a two days' history of cough. His respirations were quickened, but he breathed without distress, even when lying down. When disturbed his respiration became grunting, and he resented being interfered with. His chest was resonant back and front when examined in bed in the ordinary way. On the right side, in front, above the nipple, the breathing was vesicular, with just a suspicion of an amphoric character, which latter became more marked as the nipple was approached. Below the nipple the breathing was decidedly amphoric and became increasingly so down to the liver, together with metallic tinkling which was superadded. In front a bruit d'airain was audible in the lower two thirds of the chest, and in the axilla all over the chest. Behind, at the right root, the breathing was bronchial in character, but elsewhere it was vesicular and associated with fine crackling. When laryngeal grunting occurred the grunt terminated in a metallic tinkle, which was audible in the neighbourhood of the angle of the scapula. When the child was shaken, splashing was readily heard, and also a tinkling sound.

When he was bent forwards the front of the chest became dull to percussion and amphoric breathing disappeared. When he was bent backwards the back became dull. The heart was displaced to the left, the apex beat being in the fifth interspace, half an inch or more outside the nipple line. The cardiac dullness commenced one and a half finger's breadth to the left of the *left* sternal margin. It was absolute at the fourth left costal cartilage and considerably modified at the third left costal cartilage. Viewed with the X rays, the front of the chest was transparent, except over a triangular strip, with its base downwards, reaching from the third rib to the sternum and liver, which was opaque to the rays, but not so opaque as the heart. This was thought to be the lung. Looked at from behind, the affected side was transparent. The diaphragm on the affected side was distinctly concave above and barely moved with respiration, whereas the other side moved very freely, carrying the stomach with it in its excursions. The chest was opened, and six ounces of pus were evacuated, but he died the same night. At the autopsy the heart was much displaced to the left, the right border of the right auricle being about the centre of the sternum. The right lung was collapsed and covered with a thick purulent exudation. A band of adhesion between the middle and upper lobes and the chest wall held the lung in front against the parietes, which divided the pleural cavity into two parts. Pus on the inner side of the lung, between it and the mediastinum, had not been able to flow freely into the rest of the pleural cavity, and several ounces remained there, whereas the part that had been opened had been drained by the operation. Below, the lung was firmly adherent to the diaphragm. At the anterior extremity of the lower lobe three apertures were visible, all of which opened into an abscess cavity. The whole of the lower lobe appeared to be composed of small abscess cavities, apparently broken-down broncho-pneumonia. The upper lobe was almost free from disease, and the left lung only contained a few patches of broncho-pneumonia. Cover-slip preparations from the pus showed a very large coccus, which stained very deeply with methylene blue. It occurred chiefly in small groups of four or five to six, and chiefly as a diplococcus.

Basic consolidation may give all the physical signs of fluid with one exception, and that is displacement of the cardiac impulse. Vocal resonance and vocal fremitus are of but little diagnostic service in children, but cry-fremitus and cry-resonance are sometimes useful. Egophony as a sign is valueless.

Auscultation of children's chests is by no means easy; the pitfalls

for the unwary are numerous. The two sides of the child's chest often do not act in unison: one side works freely, the other is sluggish. Thus it may appear that on the sluggish side there is a deficient vesicular murmur suggestive of fluid, whereas with increased action the breath-sounds become loudly tubular. Thus it often happens that a further examination of the chest coinciding with a fit of crying will materially alter our deductions as to the nature of the complaint which have been arrived at under more peaceful though less reliable conditions. It often happens, too, that at one time a vesicular murmur is audible, whereas with more forcible laryngeal intonation the breathing becomes tubular; possibly the expiratory sound alone has this quality, and broncophony is then heard for the first time. Broncophony contra-indicates fluid.

A case may first come under observation as acute croupous pneumonia, but the customary crisis (sometimes extensive rises and falls of temperature occur after the crisis for a day or two before equilibrium is reached) is passed by, the temperature remains elevated, and the signs of consolidation give way to those of fluid, and this is *the important point*. Sometimes the temperature falls as usual and subsequently rises, remains more or less elevated, and is accompanied by a change in the physical signs suggestive of fluid effusion.

Accumulations of pus in the chest may become localised and, being confined by adhesions, may be limited to the apex, the base, the axillary region, between adjoining lobes, between the lung and the diaphragm, the lung and the pericardium, or the lung and the mediastinum. Thus it may be necessary to explore the chest below the clavicle, or the pus may be quite beyond reach or detection by the methods of physical diagnosis at our disposal. When there are two or more cavities they often communicate by a sinus or by sinuses, but they may be shut off. In a child, aged 10 months, under my care the space containing pus was like a honey-comb.

There is yet another important point, and that is that a deposit of fibrin in the chest may yield all the signs of fluid except that of cardiac displacement.

The position of the apex beat of the heart is a most important aid to diagnosis in pleural effusions. In right-sided effusions the apex beat may be in the nipple line or an inch or more outside this. In left-sided effusions the cardiac impulse may be epigastric, or in the fourth and fifth or the third and fourth interspaces. This impulse is occasioned by the impact of the right ventricle and auricle in the interspaces and of the right and left ventricles in the

epigastric region. By some the heart, when it is displaced to the right, is thought to rotate on its axis and by others to be pushed bodily over to the right.

In an autopsy on a child, aged 6 years, the heart was found vertically in the middle line of the body, with the pericardium partially adherent to it. In an autopsy on a child, aged 4 years, more of the heart lay to the left of the sternum, but chiefly behind it. In an autopsy on a child, aged 3 years, the mediastinal contents were shifted to the right, without cardiac rotation. In an autopsy on a child, aged 10 months, with right-sided effusion, the heart was a little displaced to the left. Cardiac bruits are sometimes caused by kinking of the vessels.

The liver and spleen are occasionally displaced by pleural effusions on the corresponding sides of the body. Sometimes the spleen and the liver are enlarged, and the latter may display nutmeg alterations in chronic cases.

The affected side of the chest, which is usually more or less immobile, does not usually display obvious alterations in contour but it may be rounded or even bulging. Sometimes it appears to be smaller. Sucking in of the lower interspaces occurs in some instances. Obliteration or even bulging of the intercostal spaces happens occasionally, and this is best detected by inspecting the chest from above downward. In some cases there is œdema, and increase of cutaneous thickness may be determined by pinching the skin and comparing it with that of the opposite side. Bulging of the chest wall and cutaneous œdema signify purulent collections. In a female, aged 4 years, under my care, with a purulent effusion in the upper part of the chest, this was uniformly bulged forward from the clavicle to just below the nipple, and the sterno-clavicular joint was loosened; the overlying skin was cedematous. In a male, aged 3 months, with a purulent effusion there was marked localised bulging of the lower ribs of the right side.

Empyemas sometimes point externally, usually in one place, rarely in more than one, and mostly to the front of the chest, passing through an interspace, with denuding of the periosteum. These abscesses may be pale or inflamed and painful.

In a boy, aged 7 years, under my care, there was a fluctuating swelling over the front of the left fifth, sixth, and seventh ribs.

In a girl, aged 6 years, the abscess formed over the left fourth, fifth, and sixth ribs.

In a boy, aged 3 years, perforation was at the seventh left interspace in the nipple line, with commencing subcutaneous abscess; and

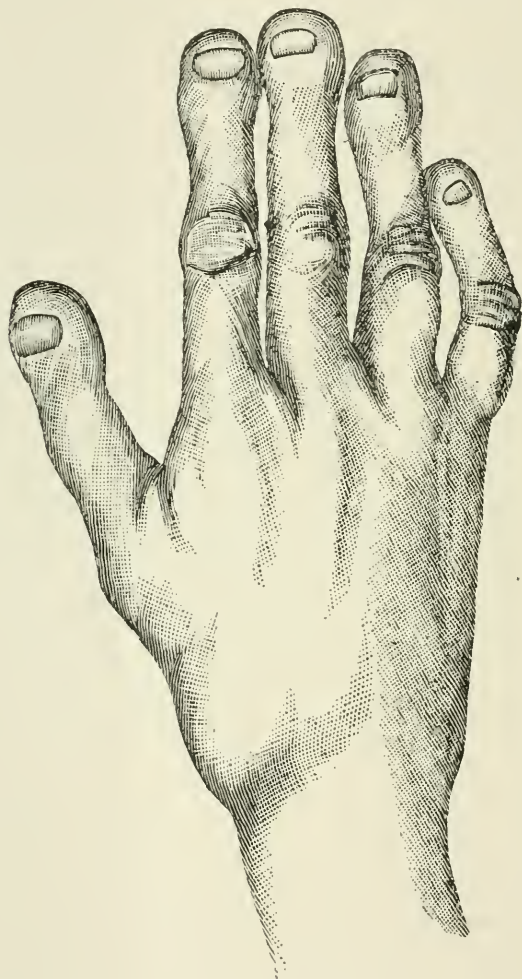
a boy, aged 9 years, had an elastic fluctuating prominence over the right hypochondriac region. Sometimes these abscesses have a transmitted cardiac impulse, and the heart-sounds are plainly audible over them. Such are called pulsating empyemas. Pulsation may be detected in the interspaces below and above the nipple, *without* an external tumour. Pus may not only find an exit through the chest wall, but it may track into a bronchus, the abdominal cavity, the abdominal viscera, the loins, or the lower extremities.

The quantity of fluid found in the pleural cavity is variable. The most I have seen was 46 oz. of clear fluid in a child, aged 6 years, but Heyfelder aspirated no less than six pints from a boy of the same age. The smallest quantity I have detected and removed was $\frac{1}{2}$ oz. of pus from each pleura in a child, aged 5 years, with immediate disappearance of physical signs. The average of pus caught at the time of operation is perhaps from 8 to 10 oz., but matter drains away for some hours afterwards to the extent of several ounces. Aspiration sometimes from admission of air or from instrumental contamination renders serous effusions purulent. I think that an empyema starts as such, but some hold to the contrary. The fluid does alter in character sometimes; thus I have seen at the first aspiration sero-pus, at the second clear blood-stained fluid, and at the third creamy pus. I have seen pus on one side of the chest and serum on the other, and I have also met with a serous effusion on a cured empyema side three years later.

In the early stages of the complaint the child usually lies on the healthy side, but with effusion in quantity he lies on his back or on the affected side, but there are frequent exceptions to this custom. Puffiness of the face and eyelids, like that of renal disease, and pertussis is seen in some cases.

In chronic cases the fingers and toes become clubbed, the chest falls in, the ribs crowd together, and the spine is curved laterally, the concavity pointing to the affected side. The child wastes, the right heart hypertrophies and dilates, and the various structural alterations in the organs accompanying this condition make their appearance. Owing to the wasting dropsy is rarely observed. A female, aged 6 years, had been ill two years; the diagnosis was phthisis. She had signs of consolidation in the upper half of the left chest. In the upper half of the chest the breath-sounds were cavernous, below they were either distantly vesicular or distantly tubular. The dulness was absolute. On one or two occasions the opposite root of the lung appeared to be consolidated, but the sounds were found to be conducted, otherwise the breath-sounds were extra-

puerile and the resonance was subtympantic. Expectoration was muco-purulent, sometimes little, at others profuse. She had a contracted chest, with lateral curvature. The cardiac impulse was in the fifth and sixth interspaces, one and a half inches outside the



nipple. There was also epigastric pulsation. The free edge of the liver was two and a half fingers' breadth below the costal margin. Her lips were rosy-looking; she was in fair condition and could walk. From the cardiac displacement, the position of the liver, and the physical signs, I thought there must be fluid. Several times I explored, and on each occasion entered solid lung. Finally, I obtained

fluid in the axillary region. It was suggested at the time that a dilated pus-containing bronchial tube had been tapped, but 5 oz. of pus were evacuated from the pleural cavity.

Given that there is fluid in the chest, is it simple or purulent? The fact that it accompanies an exanthema, with perhaps diarrhoea, sweating, a sallow complexion, marked wasting, and an obviously low state of health are *in favour* of pus. Temperature as a diagnostic sign between the two is worthless; it may be high with serum, normal with pus. Exploration of the chest by a hypodermic syringe fitted with an exploring needle is the only satisfactory means of discovering the nature of the fluid. Exploration of the chest is a perfectly harmless proceeding if a sterilised needle be passed into a pleura filled with fluid, but it is not unattended by grave risks to life if the lung be wounded under certain and not altogether obvious conditions. It would appear from the published records of fatal cases that wounding a fibroid lung is specially dangerous to life. I was the first to call attention some years ago* to the danger of exploratory puncture of the chest, and since then others have published fatal cases. For a full report of the literature of the subject see the BRITISH JOURNAL OF CHILDREN'S DISEASES, October, 1905 (editorial, "Exploratory Puncture of the Chest; Abuse of the Needle; A Warning").

When the needle passes into the pleural cavity, fluid, though present in quantity, may not be withdrawn owing to its channel being blocked by fibrin. But the fact that the needle has passed into a cavity can be easily felt by anyone gifted with a delicate sense of touch. So also the fact that the needle has entered crepitant, pneumonic, or fibroid lung will be readily realised. Under the latter circumstances the movements of the impaled lung are imparted to the syringe.

Pus may be obtained from the lung itself by exploratory puncture; thus it may be withdrawn from a dilated pus-containing bronchial tube or from the lung proper. In one case of mine autopsy revealed a pneumonic lung riddled with abscesses, from which puncture almost anywhere would have withdrawn pus.

As has been seen from a perusal of the post-mortem findings of my fatal cases, a certain number of them die from tuberculous affections. The difficulty is to determine during life what cases are tuberculous. The majority owe their origin to simple causes and quickly recover, while others, also simple in nature, do not make the

* *Vide* 'Reports of the Society for the Study of Disease in Children,' vol. v, pp. 284-506.

rapid progress that one desires to see, and there is a real difficulty in determining clinically what are tuberculous and what are not. Signs of progressive breaking down of the consolidated lung in the shape of gurgling râles, of fever, wasting, and obvious going downhill betoken phthisis. In the diagnosis of general tuberculosis cerebral symptoms must be watched for. Thus ocular or facial paresis, respiration of irregular rhythm, weakness of a limb, cerebral pulse, sickness not obviously peritonitic, convulsions, and early optic neuritis are important indications of a fatal ending. Suggestive of tuberculosis of the lungs and viscera are—great frequency of the respirations, without sufficient pulmonary cause; a prolonged and irregular temperature, without evidence of imperfect drainage or sepsis; oedema of the hands and feet; and tubercles in the choroid. A tubercular family history and the presence of tubercular lesions elsewhere merit attention. But too great reliance must not be placed on the former, and the presence of other tuberculous lesions is no sure indication of a fatal termination—it warrants suspicion, nothing more.

Treatment.—For the relief of pain and cough nothing is better than small and frequent doses of opium, administered in the form of compound ipecacuanha powder. Painting the painful area with glycerine of belladonna and the application of warmth to the parts by heated cotton-wool or Gamgee tissue, are useful accessories. Dry cupping is also serviceable, and to a strong and vigorous child three or four leeches may be ordered; but they are apt to produce a bad mental effect in the highly sensitive, and in them should not be tried. Cold applications in the shape of an ice-bag, though sometimes useful, are prone to produce collapse. Hot fomentations, changed hourly, with or without anodynes, have their advocates, but as a rule those topical remedies which require frequent renewal are better avoided. The inoffensive cotton-wool jacket and opium by the mouth usually meet all requirements. If the pain be very severe, increased immobility may be obtained by strapping the chest; the plaster should cross over to the healthy side for a couple of inches back and front. An abdominal binder will help to keep the diaphragm immobile and is sometimes very useful. The child should be put to bed in a room with an equable temperature, say 60° F., and the bowels should be well opened.

When effusion has taken place there are two important considerations, viz. (1) the quality of the fluid, and (2) if serous, the duration of the attack.

If the pleural cavity be full or in sufficient amount to obstruct

the heart or respiration, the fluid should be removed *immediately*. Sudden death is very likely to happen in such cases. By quickly opening the chest and performing artificial respiration, I once revived a child who had ceased breathing.

If the lung on the affected side be consolidated, a small amount of fluid may cause considerable cardiac displacement and consequent distress, and the withdrawal of even a small quantity of fluid will confer great relief.

Simple effusions, even if moderate in amount, should not be left *in statu quo* for longer than three weeks, as the lung is liable to contract adhesions. If there be fever it is better not to aspirate, unless otherwise contra-indicated, as the fluid is sure to re-accumulate. When aspirating it is not necessary to remove *all* the fluid: withdrawal of a moderate amount will often suffice. Sometimes two or three aspirations will be found necessary. Aspiration should be stopped immediately the child commences coughing or complains of pain or should blood appear in the bottle. The bottle should not be completely exhausted; it should be filled gradually by a slow pumping action. Should the flow of fluid cease suddenly from blocking of the cannula by lymph, the obstruction can be removed by the introduction of a plunger, smaller but longer than the cannula, and prevented by keeping it there during the operation.

The majority of cases, however, are amenable to medicinal treatment. A diuretic mixture containing digitalis and iodide of potassium should be given. A useful treatment in some instances is to limit the quantity of fluid to half a pint in the twenty-four hours, and the diet should also be given as dry as possible. Scott's ointment, well rubbed into the affected chest night and morning, or the use of this ointment mixed with iodide of potassium ointment, has seemed to me to be of value. This method of treatment will also be found useful in cases of thickened pleura where resonance is impaired and the breath-sounds are feeble. If pustular dermatitis appears, this application should be temporarily discontinued and the sore places dressed with boracic ointment.

Empyema.—If the effusion be purulent the proper treatment is to remove the pus forthwith. There is but one exception to this rule, and that exception is phthisical empyema because operation in such a condition hastens the tuberculous process in the lung. But even in such a case, if there be danger to life from interference with the heart or respiration, the routine methods of treatment should be adopted. In the cases of empyema that have been under my superintendence nearly all of them have been treated either by simple

incision through an intercostal space or by incision combined with the removal of a couple of inches of a rib. I have seen quite a number of cases make a rapid recovery by simple incision alone, but on the whole I prefer incision combined with resection of the rib. When the interspaces are narrow, as is frequently the case, the drainage-tube is very apt to be forced out of the chest by coughing and will be found lying in the dressing. Removal of a piece of rib does not add materially to the severity of the procedure, and its removal allows the introduction of a suitable drainage-tube, it facilitates evacuation of the sodden-looking brown-paper-like masses of lymph which are a feature of infantile pleuritis, and of which I have removed as much as 2 fluid oz. at a dressing, and it enables a digital examination of the abscess cavity to be made at the time of operation. On theoretical grounds it is not advisable perhaps to resect a rib in fœtid empyemas, but even here I have not found the practice harmful. In all the cases under my charge the incision has been made in the eighth interspace just outside the angle of the scapula, and this site has proved in every way satisfactory. It affords good drainage when the patient is lying down and also when he is, as he should be, running about the ward. A rubber drainage-tube about the diameter of the little finger should be selected. It should be sufficiently long to pass well inside into the pleural cavity, but not any longer than necessary for that purpose. The end of the tube should be split into three parts; these should be introduced through a hole in a rounded flat piece of rubber and the cut ends bent over and stitched by silver wire to this rubber shield. The tube does not require a hole in it, it does not need to be shortened, when necessary it can be replaced by one of narrower calibre, and when the time arrives to discard it it should be abandoned altogether. When there is much pus it is better on the insertion of the tube to allow the fluid to drain away gradually into a sufficiently thick antiseptic dressing. Serious consequences may follow sudden disturbances of the mechanism of the lungs, such as œdema with frothy expectoration. When the discharge is serous, and but a drachm or so on the dressing, the tube can be discarded. There is no time limit for this; occasionally a week or so I have found sufficient; the average is about ten days. After a few weeks' use of the tube I have several times seen it surrounded by a tunnel of bone, and in some instances several of the ribs have become united by bony growths. The lung can often be seen at the bottom of the wound either of a slate colour or lymph-covered. It may remain motionless or appear close to the chest wall. If close up to

the chest, the lung movements appear to be up and down and not to and fro. When there is a large cavity a considerable rush of air will be heard through the tube. Probing the wound, unless there is a large and obvious cavity, is likely to prove misleading. Even if there is *apparently* a cavity of some extent, the discharge being serous and trifling, an attempt should be made to abolish the tube. After operation usually the air appears to enter the chest fairly, with vesicular breath-sounds. But stethoscopic signs are somewhat misleading. Thus I have heard vesicular breath-sounds over a completely collapsed and therefore airless lung.

When the upper lobe is consolidated the physical signs persist for a variable period. I have noticed this with even a moderate-sized empyema. Thus, in a child, aged 2 years, with left-sided empyema consolidation of the upper lobe persisted for two months, and then rapidly cleared. In another child under 2 years similar consolidation continued for eight months after the empyema was cured. Mercurial inunctions were tried. Two months later there were signs of resolution, resonance returned, breathing was vesicular entry of air fair, together with a few râles. When he next came under observation the chest was quite healthy, and, with the exception of scarring, no difference could be detected from the opposite side. Recognition of these cases of delayed resolution will prevent a too hasty diagnosis of phthisis. Below the wound may be heard distant tubular breathing, a vesicular murmur, or râles. When the empyema is cured there is apt to remain deficient entry of air and impaired resonance for some little time to come.

With re-accumulation of pus there are two indications, viz. a rise of temperature, sometimes not much above 99° F., and alteration in the physical signs. A rise of temperature does not necessarily mean imperfect drainage or re-accumulation of pus. In several of my cases it was due to scarlet fever or measles and in others to pneumonia, tonsillitis, general tuberculosis, or peritonitis. Sometimes it could not be accounted for, and, again, it appeared to be owing to a small superficial collection of pus about the wound. Conversely a subnormal temperature need not cause anxiety; this is very common in childhood, and not infrequently the temperature may be as low as 95° F. A re-accumulation is not always easy to diagnose. Thus a child, aged 6 years, a cured empyema, was suspected of typhoid fever in the pre-Vidal days. There was comparative dulness and somewhat deficient breathing, quite compatible with her history. Three times she was most carefully examined. After fifteen days a swelling appeared over the scar and a quantity of pus escaped.

It must be admitted that a certain number of cases of empyema are never diagnosed, and recover spontaneously, in children. It is also undoubted that simple aspiration, usually several times repeated, is capable of curing empyema. Small collections of pus are sometimes expeditiously dealt with by this method. Thus pus was withdrawn by exploratory puncture from the right base. Some days afterwards, when the child was prepared for operation, the physical signs were rather in favour of solid lung. Several exploratory punctures were made and passed into solid lung. The chest signs finally cleared. The quantity of pus in this case was probably small. But time is certainly not usually saved by the use of this method, and repeated aspirations cause far more constitutional disturbances than one simple empyema operation. Further, the method has the disadvantage of leaving flakes of lymph behind in the pleural cavity, which possibly may set up mischief later on. Aspiration, therefore, cannot be recommended.

If the empyema has ruptured into a bronchus, if the discharge is diminishing, if the child is gaining flesh, and if the temperature is normal, the cure may be left to Nature. But if the child be not so fortunately circumstanced, then an incision should be made into the pleural cavity and the empyema treated in the ordinary way. When this is done, the opening in the bronchus, if small, often rapidly closes; occasionally, however, the track in the lung does not heal, and such cases are very unpromising. If the empyema be pointing externally, the chest should be opened at the site recommended for the treatment of ordinary cases, unless the collection of pus be local, when it should be drained at the most dependent situation. If that be where the abscess is pointing, then the wound must be enlarged, but if not a second opening should be made in the most favourable place.

When a child has worn a drainage-tube for months and the discharge continues purulent, when the lung has expanded to its utmost, and when the chest walls have fallen in as far as they will go, and the diaphragm has risen as far as it can rise, and there still remains a cavity, it is advisable, following the plan of Estlander, to facilitate the fall of the chest upon the lung by removing large portions of ribs bounding the cavity. The largest portions should be removed opposite the middle of the cavity and the smallest opposite the upper and lower ends. The whole of the periosteum and thickened pleura corresponding to these ribs must be excised to prevent the re-formation of bone. Symptoms of lardaceous disease make the closure of the cavity imperative; and in chronic cases, where the

chance of expansion is problematical, it is best to resort at once to resection. Thus a child on each occasion healed after twice undergoing ordinary surgical treatment for empyema and finally underwent successfully resection of ribs. The disease in this case lasted over a period of five years. She was seen some long time afterwards, and the chest, with the exception of scarring, showed little, if any, trace of the empyema.

An anæmic, wasted girl, aged 4 years, with a history of illness of some months' duration and with a shrunken chest, slight lateral curvature, a puffy-looking face, and a strong family history of phthisis was admitted into hospital with a left-sided empyema which had pointed just below the corresponding nipple. The heart was displaced to the right. The empyema was opened in the eighth interspace, just outside the angle of the scapula, and 5 oz. of pus were evacuated. Between the shrunken lung and the chest wall there was quite a large cavity, and subsequently pieces of five ribs were removed, four inches in all. Two months later the wound had healed, but the heart still remained under the sternum, the breath-sounds had improved all over the left side, and the child left the hospital in good condition.

Sinuses are troublesome in some few instances. In one child under my care many inches of rib were exfoliated. Occasionally resection may be necessary to bring about their closure. Washing out the pleural cavity serves no good purpose, and is dangerous. Death from this practice has occurred from coma, convulsions, and hyperpyrexia. If the pus be stinking, washing out may be tried, but I have never seen any good results from it.

Finally, there are two *most important* points in the after-treatment of empyema, viz. plenty of fresh air and exercise short of fatigue. The child should not be kept in bed longer than is absolutely necessary, and immediately his strength permits he should be up and walking, and finally encouraged to run about in the open. Get the empyema patient out of bed is a golden rule of practice.

THE SURGICAL TREATMENT OF PLEURAL EFFUSIONS
IN CHILDREN.*

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I THINK I may say that the surgical treatment of pleural effusion is confined entirely to the treatment of empyema, as although the treatment of simple pleural effusion is usually surgical and was in old times performed by surgeons, it is now exclusively practised by physicians. When I had the honour of being asked to open this discussion on the surgical treatment of pleural effusion I thought that it would be better not to enter into an exhaustive discussion upon the treatment of empyema, but simply to suggest those points in the treatment which seemed to me to be of importance, and especially those where there is room for improvement upon present practice. In a discussion of this sort what we chiefly want is an expression of opinion by those taking part in the discussion as to the more debatable points in the treatment of this condition.

The after-histories of cases of empyema which have been surgically treated is one of the results which it is to be hoped this discussion will bring forth. I have followed up the cases treated at the North-Eastern Hospital during 1904 and tabulated the results, but the number is too small to be of much value in drawing conclusions.

There were fifteen cases, with six deaths. Two of the children who died were not operated upon. Of the four others one had a double empyema, one died from the results of sepsis some time after operation (this child had been ill for two months before coming to the hospital), and the two other children died from complications, one from acute nephritis and one from pericarditis. Nine patients recovered and the result was perfect in four; that is to say, there was nothing but the scar left. In one of these there is a gap in the rib, but in the other three no gap can be felt. In two cases the result was fair, there being a slight difference in the expansion on the two sides of the chest. The result was unsatisfactory in two cases. In both these cases the empyema had been present for some considerable time before being operated on—in one case four months and in the other sixteen days.

* A paper read before the Society for the Study of Disease in Children.

Empyema occurring in children may be divided into two distinct classes, which are of particular importance from the aspect of treatment—(1) those cases in which the infection is a purely pneumococcal one, (2) those cases in which a septic, tubercular, or mixed infection is present. In all cases of empyema in children a bacteriological examination of the pus should, if possible, be made, though one can frequently tell roughly with what form of infection one is dealing by the appearance of the pus.

In most cases of infantile empyema the infection is a purely pneumococcal one, and from a surgical point of view little is required beyond allowing the pus to escape, and so enabling the lung to re-expand. Drainage for any length of time is in such cases entirely unnecessary, and by interfering with the re-expansion of the lung may be harmful. In the cases of pneumococcal infection the tube may usually be removed on the second or third day, and drainage for any longer period is seldom required. The chest remains open for a day or so longer, and it is not often that any re-accumulation occurs. In many cases I believe that incision without drainage is all that is necessary; this treatment was advocated by Dr. Sutherland in 1894. In cases of small empyema where the infection is pneumococcal, the patient's general condition is good, and there is reason to suppose that the elasticity of the lung has not been seriously impaired (that is to say, in those cases where rapid re-expansion of the lung may be expected), all that is necessary is to make a free opening in the chest by removal of a portion of rib through which all the fluid can escape. If then the lung is found to expand well, no drainage-tube need be inserted. Immediate re-expansion of the lung will usually take place as the result of coughing or crying, and this should be encouraged and the fluid assisted to escape by turning the patient on to the affected side.

In the few cases in which I have treated empyemata in children by this method it has been entirely successful, the wound has very rapidly closed, and no re-accumulation of pus has occurred. I think there can be little doubt that some re-accumulation must be looked for in a certain percentage of cases so treated, but this is not likely to be serious, and will merely necessitate re-opening the wound again. This is the treatment now commonly adopted for psoas abscess, and the circumstances are far more favourable for the cure of an empyema by incision without drainage than for psoas abscess where there is diseased bone present. If the child's general condition is good and the infection not a severe one, any infective material in the pleural cavity which does not escape will almost cer-

tainly be dealt with satisfactorily by the pleura once the bulk of it is removed. In cases of mixed infection, or where the pleura is much thickened, or the child's general condition bad, I should prefer drainage.

There is one point in connection with the treatment of empyema which is, I think, too frequently neglected and which has an important bearing on the result. Too often an empyema is looked upon as a septic abscess and as therefore not requiring any special care as regards aseptic technique in its treatment. This is, of course, entirely wrong. As a rule the infection is a simple pneumococcal one, and secondary infection with other pathogenic organisms will greatly add to the severity of the condition and seriously retard recovery. Moreover, owing to the pleura being already damaged, infection will occur more easily, and will probably be more serious if it does occur.

I believe that when operating on an empyema the skin should be cleaned and the operation carried out as carefully as if the abdomen were going to be opened, and the wound should be subsequently treated with the greatest care to prevent any possibility of further infection.

You will perhaps think that it is unnecessary of me to emphasise this point, but I am certain that sufficient care is often not taken to keep the wound free from infection, with the result that an infection which was at first a purely pneumococcal one becomes after a few days a mixed infection.

In looking through the notes of cases of empyema one far too frequently sees on referring to the charts that a temperature which before the operation was but slightly raised became about three days after operation of the septic type, and I cannot but believe that this indicates secondary infection of the pleura.

In those cases where there is a mixed infection, where the pleura is much thickened, or for some other reason re-expansion of the lung is likely to be much delayed, good and proper drainage is essential. The best tubes I believe to be those designed by Mr. Bilton Pollard, with a double flange and just long enough to pass through the chest wall and no more. The method advised by Mr. Watson Cheyne, of placing a piece of green protective over the tube, or opening the chest wall so as to form a valve and prevent the ingress of air while it allows the pus to escape, is much to be recommended.

With regard to the best place for opening the chest. I think it is very difficult to lay down any rules. In cases of pneumococcal

empyema, when prolonged drainage is not a serious consideration, the old-fashioned opening in the mid-axillary line is the most convenient. In the mixed and septic cases the posterior opening just below the scapular angle is much to be preferred on account of the much better drainage secured.

The anæsthetic.—The anæsthetic is a point deserving of special attention in the operation for empyema, as there can be no doubt that there is danger in the administration of an anæsthetic in cases where a large empyema exists. I think light anæsthesia with C.E. mixture or very light chloroform anæsthesia are best, and this should when possible be given combined with oxygen inhalation.

When dealing with a large empyema in a young child it is important not to allow the pus to escape too rapidly, and in some cases it is safer to slowly draw off the greater part of the pus with an aspirating needle. Mr. Godlee* recommends that if the chest is very full of fluid and the breathing and heart's action are hampered, a considerable quantity of the fluid should be drawn off before the anæsthetic is administered. I know of at least one case in which the child died directly the chest was opened and a large accumulation of pus allowed to escape rapidly.

In cases of foul empyema, and in those where there is much pyogenic membrane, I believe in irrigating the pleural cavity after making a free opening into the chest. The practice of irrigating the pleural cavity has been much criticised, and some surgeons have altogether condemned it owing to the fatal results which have sometimes followed. There can be little doubt, however, that these fatal consequences were due to the method of irrigation and the fluid used rather than to the practice itself.

Mr. Tubby some years ago performed some experiments upon dogs to elucidate this point, which he referred to in his paper on "Sudden Death in Children" last year. He found that no serious results followed irrigation of the pleural cavity with normal saline solution, but that irrigation with even quite weak solutions of carbolic acid or iodine often caused the immediate death of the animal. No surgeon would think of irrigating the abdominal cavity with carbolic or iodine solution, especially in children, but such solutions have been recommended from time to time for irrigating the pleural cavity in cases of empyema. I believe irrigation to be perfectly safe if normal salt solution or sterilised water is used and care is taken not to produce positive pressure in the chest.

The chief advantage of irrigation is to wash out the large pieces

* Fowler and Godlee, 'Diseases of the Lungs.'

of pyogenic membrane which are often present, and which, if allowed to remain, may act as foreign bodies and so keep up the discharge. While I do not think that irrigation should be employed as a routine measure, I think it has a decided field of usefulness in certain cases.

The operation for empyema is a comparatively simple one, and a successful result depends mainly upon two factors—(1) letting out the pus at the earliest possible moment, (2) careful after-treatment. There can be no doubt that the worst cases are those in which the empyema has existed for some considerable time before being operated upon. These are the cases which most frequently prove fatal, and also in which, if recovery occurs, it is most difficult to obtain proper re-expansion of the lung and rapid healing of the wound. It is, however, entirely a question of early diagnosis, and as the surgeon is a purely secondary agent in the treatment of empyema, and has merely to treat cases when they are referred to him, it does not come within his province. There is no doubt, however, that the operation should be performed directly the presence of pus within the pleural cavity has been diagnosed, and that any delay very seriously affects the result.

Everything should be done after the operation to allow and encourage easy respiration. This is a factor in aiding recovery which is sometimes overlooked in the desire to keep the child warm and keep the dressings in position. It is very easy in infants and young children to embarrass the respiratory movements by tight bandages or heavy bedclothes. The bedclothes should always be supported on a cradle, and the greatest care should be taken to see that the bandages do not in any way restrict the thoracic movements.

In the after-treatment of empyema everything depends upon obtaining rapid re-expansion of the lung after draining away the pus. The after-treatment should, I think, be divided into two periods.

The first is that during which an opening in the chest exists. Here we have to deal with a condition of pneumo-thorax, and, consequently, since expansion of the chest will no longer give rise to negative pressure in the pleural cavity on that side, we cannot avail ourselves of the ordinary breathing exercises, and we must make use of the positive pressure produced by the sound lung during expiration to expand the affected one. The patient should be made to expire forcibly against resistance. The simplest way of doing this is to make the child blow forcibly through a small tube held in the mouth, such as a piece of glass tubing. A good plan in a child is to give it a whistle or trumpet which will not make a noise unless blown hard.

During the second period we are no longer dealing with a pneumo-thorax, and our object is to obtain expansion of the lung by negative pressure in the pleural cavity as in normal respiration. This can only be done when the pleural cavity is closed by the healing of the wound, or by the formation of adhesions between the visceral and parietal layers of the pleura. At this stage in the after-treatment also we wish to develop and increase the musculature on the affected side of the chest in order to prevent any tendency to deformity. These objects can best be attained by suitable respiratory exercises, which, when possible, should be continued for some months after all symptoms have disappeared.

The best plan, when the parents can afford it, is for the child to attend regular classes at a surgical gymnasium, preferably on the Swedish principle, and conducted by a properly trained instructor. A skilled instructor is essential, and the child is much more likely to do the exercises properly and take an interest in them when in a class with other children than if alone. Special attention should be paid to exercises which develop the chest and arm muscles, and those which increase the respiratory index. In very young children such exercises are, of course, impossible, but passive exercises, if properly done, may be of service in some cases.

It would be an excellent thing if in all children's hospitals classes for surgical exercises could be organised. Such classes, conducted

Name.	Age.	Operation performed or not.	Duration of illness previous to operation.	Time when tube was removed.	Wound healed.	Result.
G. B—	4	+	8 weeks	10th day	6 weeks	Perfect.
R. B—	1 $\frac{7}{12}$	—	—	—	—	Died.
E. K—	4	+	4 months	—	2 months	Bad. Mixed infection
W. H—	4	+	—	11th day	—	Perfect. Mixed infection.
D. M—	2 $\frac{1}{2}$	+	2 months	7th day	—	Died (sepsis).
R. L—	2	+	4 days	—	—	Died (double empyema).
T. C—	2	—	3 weeks	—	—	Died.
E. R—	1 $\frac{1}{2}$	+	2 days	—	—	Died (acute nephritis).
E. N—	2	+	2 days	—	—	Died (pericarditis).
M. D—	6	+	16 days	16th day	—	Poor. Some falling in of chest and bad expansion.
G. H—	9	+	2 weeks	17th day	—	Not known.
E. P—	1 $\frac{1}{4}$	+	Pneumococcal infection at first, but became septic 3 days after operation	—	—	Very good result. Gap in ribs.
W. A—	1 $\frac{1}{2}$	+	Mixed infection	—	—	Fair. Slight flattening of chest.
R. B—	6	+	1 week	Mixed infection	—	Perfect.
T. M—	5 $\frac{1}{2}$	+	3 days	—	—	Fair. Slight flattening of chest.

by a skilled instructor, would cost but little, and would be of great benefit to children recovering from empyema and suffering from lateral curvature of the spine. I believe the time will come when a surgical gymnasium will be considered a necessary part of every children's hospital. Most Swedish hospitals and several German ones now have such gymnasia.

With regard to secondary operations in cases where the lung has failed to re-expand, I think the results of such operations as Estlanders are often far from pleasing; apart from the deformity of the chest which they produce, secondary spinal curvature and other troubles not infrequently result. It seems to me that much may be done by careful attention to the after-treatment to do away with the necessity for such operations. In any case, Estlander's operation should not be done too hastily, but plenty of time should be allowed to see if the lung will re-expand, and, if possible, suitable respiratory exercises should be carried out with the same object.

The Society for the Study of Disease in Children.

A MEETING of this Society was held on April the 20th at No 11, Chandos Street, W., Dr. J. PORTER PARKINSON being in the chair.

A Case of Psoriasis Cuttata in a healthy-looking boy, aged $6\frac{1}{2}$ years, was shown by Mr. W. MILNER BURGESS (Harlesden). The spots commenced when the child was five, few in number at first; they are best marked on the chest, abdomen, anterior and inner surface of the thighs and back. Under treatment the condition showed improvement.

Dr. PORTER PARKINSON drew attention to an apparent connection between psoriasis and chorea.

Mr. R. CLEMENT LUCAS said that psoriasis was an hereditary condition.

Dr. CAUTLEY asked for a history of acute specific fever, and some cases, he said, had definitely followed vaccination.

Mr. MILNER BURGESS, in reply, said the disease did not follow any specific fever.

A Case of Morphœa was shown by Mr. S. H. WAREHAM.

A Case of Atelectasis of both upper lobes in a female, aged 31 days, born at full time, was exhibited by Dr. CAUTLEY. No history of cyanosis at birth or attacks of lividity. Cough for two weeks. Weight, 6 lb. 12 oz. Temperature a little irregular. The note was impaired over both upper lobes, and the air-entry was very feeble. Good resonance over the rest of the lungs. Occasionally became very blue, but chiefly after coughing.

A Case of Hæmatemesis and Melæna due to Gastric Ulcer in a girl, aged 5 years, was exhibited by Dr. CAUTLEY. She was quite well until March the 17th, when she vomited about a pint of dark clotted blood, and shortly afterwards passed a tarry stool. Next day she again vomited blood—about half a pint—brighter in colour, containing clots; next day passed a black stool. No history of pain after food. Anæmic on admission. Spleen and liver a little enlarged. Uninterrupted recovery. Gain of 28 oz. in last two weeks. Blood-count: Red cells, 3,512,000; white cells, 28,250, of which 63 per cent. were polymorphonuclear leucocytes.

Dr. G. A. SUTHERLAND said that most cases of gastric ulcer in the child came under notice for perforation. There were several points against it being due to gastric ulcer in the present instance. The colour and physiognomy of the child were suggestive of splenic anæmia, and there was an enlargement of the spleen. His idea was that the hæmorrhage was due to some form of anæmia.

Dr. PORTER PARKINSON said that the child had not had any bleeding for some time, and that would be against the view that it was splenic anæmia. As the child seemed to be in a comparatively good state of health, he inclined to gastric ulcer as the diagnosis rather than splenic anæmia.

Dr. CAUTLEY, in reply, thought sufficient stress had not been laid upon the rapid gain in weight. The treatment adopted had been that of ordinary gastric ulcer.

Dr. SUTHERLAND said it was usual to find a gain in weight after a severe loss of blood, and he believed it was the practice to bleed cattle when it was the wish to fatten them.

A Case of Sarcoma of the Lung in a male, aged 10 years, was exhibited by Dr. CAUTLEY. Early in January he had an attack of (?) pneumonia of the right lower lobe, and had been ailing since. Later the screen showed a horizontal shadow on the right side and no movement of the right half of the diaphragm. Subsequently he was explored under an anæsthetic, but no pus was found. Next the signs of a cavity subjacent to the right nipple appeared, followed by more extensive signs of breaking down of the lung, but no expectoration. By April 17th the signs of excavation cleared up, dulness was more extensive and extended on to the sternum. The breath-sounds were weak from the third to the fifth rib, and almost absent below that in front. For about ten days he had had some vomiting, cough, and slight hæmoptysis. The heart did not appear much displaced. He had been practically free from fever for seven weeks.

Dr. G. A. SUTHERLAND took it that fluid could be excluded in the present instance. He could not trust the ordinary exploration of the house-surgeon or house-physician: their tendency was to go right into the lung, and they often failed to find fluid which was definitely there. It was known that in connection with pulmonary disease in children one might have all the signs of fluid over an absolutely solid lung. On the whole, he was inclined to agree with the diagnosis.

Dr. JAS. CARMICHAEL (Edinburgh) asked whether there was any evidence of glandular affection in any part of the child's body, especially in the thorax or axilla, and Dr. CAUTLEY, in reply, said there was none.

Notes of a Case of Chloroma in a young child were read by Dr. BEATTY (Belfast) for Dr. McCaw (Belfast). *On admission*, the child, aged 18 months, seemed well developed and well nourished. She was markedly

anæmic, and had a peculiar frog-like appearance, due to proptosis and to swelling and ecchymosis of the eyelids, and also owing to swellings about the size of a tangerine orange in each temporal fossa. The proptosis and swelling were greater on the right side than on the left. The swellings were hard, dark-coloured, greenish-black, and gave no evidence of fluid content. A tumour the size of an egg was situated over the upper part of the sternum, similar to those in the temporal fossa. The glands in the groin were swollen, hard, and black-coloured, but not tender. The axillary glands were slightly enlarged. The lower end of the left femur was swollen and very tender on movement. The gums were not swollen or spongy. The heart and lungs were healthy: no enlargement of the liver and spleen was present. The urine was normal and the bowels regular. The temperature was 99·4° F. The child became gradually worse and died three days later. No post-mortem examination could be obtained. *Blood examination* by Dr. Beatty—Red corpuscles, 1,150,000 per c.mm.; white corpuscles, 16,000 per c.mm.; hæmoglobin, 34 per cent., and hæmoglobin standard, 1·5 per cent.; normoblast equalled 5·4 per cent.; megaloblasts, ·6 per cent. *Differential count*—Polymorphonutrophiles, 28·8 per cent.; small lymphocytes, 59 per cent.; large lymphocytes, 8·6 per cent.; transitional lymphocytes, 1·2 per cent.; myelocytes, 2·6 per cent.; eosinophiles, 0 per cent. Marked variation in the sizes of the red cells was observed, varying from 5 μ to 11 μ . Two fifths were over the average size, and some were undoubtedly megalocytes. Poikilocytosis was common, and so was polychromasia. Many of the normoblasts were in mitotic division.

Dr. CARMICHAEL (Edinburgh) said a case of chloremia occurred in the wards of one of his colleagues in the Children's Hospital, and in that case the facial appearance agreed with that of Dr. McCaw's case. The tumours were very marked about the region of the eyes and orbits, and there was some peculiar joint affection. He had not heard that the patient had died. The blood examination did not reveal quite the same state as that described by Dr. McCaw; there was not the same amount of blood degeneration, but he could not remember details.

A Paper on Inguinal Hernia in Children, giving an analysis of 305 operations for radical cure, was read by Mr. ROBERT CAMPBELL (Belfast). He said that it was generally admitted that treatment by trusses was uncertain in its results, and prolonged and irksome to the patient, whereas by operation a permanent and complete cure could be obtained within a fortnight. The great advantages of operative treatment being admitted, he said the question then arose, "At what age should the operation be performed?" He thought the only logical answer to this was "As soon as the patient is presented for treatment, provided the general state of health be satisfactory." Some surgeons who had published articles recently on the subject had advocated treatment by trusses until the age of three or four years. What was the reason for this view? Was it that the pressure of a truss might, at the cost of much trouble to the surgeon, and inconvenience or even suffering to the patient, have a chance of producing a cure? Or was it that these surgeons were restrained by imaginary difficulties and dangers of the operation in infants? He quoted statistics to show that 34 per cent. of his cases were operated on under six months, 44 per cent. under one year, and 77 per cent. under three years. Mr. H. J. Stiles and Mr. E. S. Carmichael had also advocated and practised operating during the first six months of life. He thought that the danger of sepsis in infants had

been greatly exaggerated. Only 2 out of 305 cases had suppurated. He also called attention to the nature of the sac. In not more than 5 per cent. of the cases had it communicated with the tunica vaginalis testis. In other words, the common hernia of children was a hernia into a patent funicular process, which was, of course, as much entitled to be described as a congenital hernia as that in which the sac and tunica vaginalis were continuous. In referring to the contents of the sac, he said that the frequency with which the cæcum and vermiform appendix descended in children was remarkable. He mentioned two cases in which the appendix was found adherent at its tip to the bottom of the sac, and another case in which a large Meckel's diverticulum was in the same condition. Strangulation was not frequent nor acute in children. He had operated on sixteen cases, most of them were under 1 year of age, two being 21 and 24 days old. In one case the ovary and Fallopian tubes were found strangulated and gangrenous in the lower part of the sac, while the bladder and uterus were lying intact in the upper part. His experience of ovarian hernia had led to the following conclusions: (1) That the operation in the abdominal wall is larger, rounder, and nearer the middle line than in intestinal herniæ; (2) that strangulation is due to twisting of the broad ligament, and not to constriction by the neck of the sac; (3) that the ovary involved tends to become enlarged and cystic; (4) that strangulation in these cases is common. As regards after-treatment, his usual plan was to remove stitches on the fifth day, and paint the wound with collodion; the patient, if under two years, is sent home on the sixth day; if over two years, he is kept until the ninth day. His own experience is that the operation is practically free from risks. The mortality should certainly not exceed 0.3 per cent. Radical cure of hernia in children might, therefore, as regards risk be classified with many so-called minor operations.

Mr. R. CLEMENT LUCAS said that Mr. Robert Campbell's most interesting paper showed how much advance had been made, not only in surgery, but in anatomical exactitude in operative measures. Mr. Campbell showed, as his own experience also showed, that cases of scrotal hernia were almost all cases of funicular hernia in which that part of the tunica vaginalis only was open which covered over the cord and descended to the top of the testes, where it was closed. In a few cases he had found an opening through which he could get a probe; but in by far the majority of cases, as Mr. Campbell had shown, the condition was funicular hernia only, in which the vaginal process was cut off on the top of the testes, and the whole of that portion could be dissected up and cut away without opening the tunica vaginalis proper. With regard to the age for operation, he believed Mr. Campbell had progressed with other surgeons in the direction of early operation. In removing the sac there was great risk of injuring the vas deferens, as it adhered so closely to the surface of the sac. Injury to the vas deferens was very likely to jeopardise the usefulness of the testes hereafter. He, therefore, never entrusted the operation to an inexperienced house-surgeon. Since the paper of Stiles, of Edinburgh, he had adopted the method of keeping the child fixed and simply using boric powder. He believed his results had been better with this method than by sealing the wounds, which he considered the next best way. His present practice was to keep the child fixed and the arms and legs bandaged, and sometimes a glass tube placed over the penis.

Mr. LOCKHART MUMMERY said the practice in the North-Eastern Hospital for Children was practically that described by Mr. Campbell. Very young children were given trusses, but if the hernia proved unmanageable or gave rise

to symptoms the practice was to operate upon it at once. The delay until six months of age was due to the increase of difficulty of the operation owing to the small size of the child and also because it meant weaning the child. Four cases that had been treated by boric acid powder supplicated, and the practice now was to use collodion or ordinary gauze dressings kept on with a bandage and changed fairly frequently.

Mr. CAMPBELL, in reply, said that for dressings he used ordinary sterilised gauze and wool. He had tried collodion and celloidin, but this method interfered to some extent with the removal of the sutures afterwards. Stiles' dressing was scarcely described correctly as dusting with boric powder. Stiles advocated putting on an emulsion of iodoform and glycerine and dusting boric powder over that.

Editorial.

TAMPERING WITH OUR MILK SUPPLY.

WE publish in this number of the JOURNAL a letter from Dr. G. A. Sutherland on a subject of the highest public importance. The problem of how to induce the authorities to ensure a pure milk supply for our children gets, if possible, more urgent as the years go by. This is largely due to the growing complexity of modern town life and the increasing number of children that have to be reared artificially. As nothing in science has been better established than the disadvantages and risks of this procedure, even when carried out under the most favourable circumstances, surely nothing in the canons of common sense could be more obvious than that the community should take all reasonable precautions to make these circumstances as favourable as possible. To do otherwise is in the direction of suicide, seeing that it is the constituents of the community—and these by no means the least important of its members—that perish from lack of these precautions. But what, in fact, is the case? There is no more open scandal at the present day than the barbarous and ignorant methods of milk collection that we officially allow and encourage, methods that by their defiance of the elements of hygiene result yearly in an appalling loss of life.

And now, it appears, a fresh danger has been added. It is a matter of common knowledge amongst those qualified to speak that in a town such as London the milk is loaded with poisons that only

increase as it passes from its tainted source to its insanitary destination. Yet there were some slight checks upon this wholesale distribution of toxic material. If an epidemic of typhoid fever could be traced to a given dairy, legal proceedings might be instituted with some prospect of success. If decomposition of the milk had advanced to such a degree as to be manifest to the senses, its impurity could be detected and the specimen rejected. Now, however, there is reason to believe that both these stimuli to the avoidance of contamination are being reduced to a minimum. Dr. Sutherland brings definite evidence to show—what we have suspected for some time—that at least some dairies are in the habit of pasteurising in a routine way the milk they send out; and this, mark, at a time when the dairies in question were under contract to supply the purest milk obtainable. The excuse offered by one dairy was to the effect that on the highest medical authority pasteurised milk is safer for infants. Into this question it is not necessary here to enter. But there can be no manner of doubt that the point that Dr. Sutherland emphasises so clearly is of immediate importance. If the dairy companies are acting in the interests of the infant population, at all events their action should not—from modesty or other reason—be a secretive one. Surely the consumers are entitled to know if such an adventure as pasteurisation has befallen their milk before it reaches them. In view of the widespread custom of boiling the milk on delivery, the previous pasteurisation must exert a deleterious influence of a considerable degree on the health of the children. Indeed, some light is thereby thrown on the cases that one sees now and again of infantile scurvy occurring in milk-fed babies.

We consider that knowledge of these facts cannot be too widely known amongst both the public and the profession, otherwise commercial milk will more than ever resemble a whited sepulchre in other respects than colour.

Abstracts from Current Literature.

Medicine.

Chronic dyspepsia in older children (*Clinical Journal*, January 31, 1906).—**Hugh Thursfield**.—At least half of the whole number of out-patients above the age of two are brought owing to a failure in the digestion of food and a consequent diminution in general health. A chronic indigestion stunts their growth, renders them liable to a number of diseases, and causes a great amount of suffering. The most obvious and most easily remedied cause is dental caries, especially among town children. When they are neglected in addition there is an accumulation of foul and putrid material in the mouth, which has a most harmful effect upon the tissues and functions of the digestive tract. Associated with the chronic indigestion is a chronic hypertrophy and catarrh of the lymphatic tissues of the fauces and pharynx, arising from causes with which we are not as yet familiar, and attention to the improvement of this condition is a chief factor in successful treatment. The main cause of indigestion in these children is certainly unsuitable food. Among the children of the well-to-do the food is often too rich, and too little care is exercised both as to the quantity and the regularity of the meals. In out-patients there is a deficient quantity of food with excess of carbohydrates, while at the same time tea and sugar are taken in the intervals of the more regular meals. There are, however, a considerable number of children who cannot assimilate thoroughly the ordinary materials of a healthy child's diet and are most difficult to treat. In these children there are obscure metabolic processes which are not obviously related to the physical conditions or to the nature of the food, and it is necessary to recognise that there are conditions, both hereditary and acquired, of which we cannot even guess the causes. The cardinal symptom in these children is the failure to grow. They are always thin and wasted, their muscular development poor, their skins dry and harsh, and usually show a considerable degree of anæmia. They are often round-shouldered, with flattened chests and protuberant abdomens: they are easily fatigued both physically and mentally; they are drowsy by day and restless and sleepless by night; their appetite is capricious, at times ravenous, at others there is absolute anorexia. Their bowels are sometimes perfectly regular and normal, more often irregular, with alternate diarrhœa and constipation. In some cases there is a large quantity of mucus passed in the stools. They sometimes have "fits" of pallor or "fainting fits." The child does not lose consciousness, but quite suddenly turns white and is collapsed for some seconds, and then slowly regains his natural colour. It has been suggested that these attacks are closely related to epilepsy and are the result of a general vasomotor disturbance originating in the cerebral centres. Pain is a comparatively rare symptom, so also is vomiting. Abdominal pain sometimes accompanies the "fits" of pallor; occasionally it is due to a spasm of the intestinal muscle, but more often it is probably of the nature of a chronic uneasiness due to a distension of the intestinal tract. The stools are large and offensive and consist of scybalous masses, often with portions of undigested food. Diarrhœa occurs at intervals and it is not infrequent to find a large quantity of mucus, "the mucus disease" of Dr. Eustace Smith. The diarrhœa often occurs in children of from four to ten years

of age in the form of "lienteric diarrhœa." In many of the cases there is at frequent intervals slight fever and usually it does not rise above 100° F. A most marked symptom is the occurrence of an irritating cough, which is worse in the morning, but is always present. It is caused solely by the congestion and hypertrophy of the lymphatic tissue of the pharynx. The most frequent mistake in diagnosis is to regard these children as victims of tuberculosis of the lungs or peritoneum. In the majority of cases a careful and repeated examination of the lungs and abdomen will reassure the doctor. The prognosis is, as a rule, good and the general principles of treatment clear. The first indication is the removal of possible causes—*e. g.* carious teeth or enlarged tonsils; next, attention to the clothing, ventilation, regularity of habits, and sufficient sleep and exercise; and thirdly, the careful regulation of the diet and of the functions of the bowel. Forbid absolutely sweets, rich cakes, sweet biscuits, chocolates, etc., not only between but even at the meals. Nothing must be taken between the meals, unless it be a cup of milk. New bread, potatoes, pickles, fried fish, and the coarser kinds of vegetables must be forbidden, and all meals must be taken at stated and regular intervals. As a rule after two years of age the number of meals should not exceed four in the day and should consist largely of milk and milk products, such as rice pudding etc., with the addition of other articles according to the age of the child. Meat should not be given more than once a day and the only large meal should be that at mid-day. In severe cases it may be necessary to give the meals more frequently, in smaller quantities, and to remove all farinaceous food from the diet for a time, using milk, eggs, cooked fruit, meat, and fish, with very little toast or stale bread. Drugs are of the greatest possible value. An alkali, with tincture of nux vomica, before meals will stimulate gastric digestion and give an appetite; or a powder consisting of sodium bicarbonate and bismuth may be given. Aperient medicine, either in the form of rhubarb, senna, or one of the aperient salts is also advisable. In many cases an acid mixture with arsenic or Tincture ferri perchloridi will be found to be very efficacious. Another drug of well-proved value is mercury either in the form of grey powder or calomel in small repeated doses and add to its effects the use of salts. In those cases where the stools are large, whitish, and offensive calomel three times a day, with a morning dose of magnesium and sodium sulphates, usually quickly restores the intestine to its normal functions. In "lienteric diarrhœa" 1 to 2 minims of Fowler's solution three times a day usually corrects the tendency at once. If not, recourse can be had to opium, bismuth, and an extremely restricted diet for a few days. During convalescence iron and cod-liver oil or one of its substitutes should be employed and a visit to the country or to the seaside will often make a permanent difference in the child's general condition.

E. J. COWEN.

The prodromal erythema of varicella (*Journ. of Cutaneous Dis.*, February, 1906).—**Henry G. Anthony** observed two cases of erythema in chickenpox, analogous to the prodromal erythema of variola. The first case was a boy, aged 2 years, previously in perfect health. One morning he began to complain of feeling sick and wanted to go to bed; on undressing him, the mother noticed an erythematous eruption on the abdomen and chest. Six hours later the temperature was 104° F.; there were no enlarged cervical glands; the tongue was not coated and did not present the strawberry appearance; no inflammation, enlarged tonsils, or white plaques could be found in the throat; the bowels had been previously regular and there

were no signs of indigestion; the pulse was somewhat rapid, the conjunctivæ were watery, and there was present a universal erythema, bright red in colour, very marked, but not punctiform as in scarlet fever. The following morning the temperature had dropped to normal, the erythema had disappeared, and both the patient and the twin brother were broken out with well-marked varicella. No desquamation followed the erythema. The second case was a girl, aged 2 years, who had been in hospital ten days; she was poorly nourished, backward in mental and physical development, and she had rickets. She had been given no medicine whatever while in the hospital; plain nourishing food and proper hygiene was the only treatment she had had; no article of food except of the simplest kind had been given her. The attending nurse noticed a redness of the skin during the morning hours; there were no prodromal symptoms. At 5 p.m. the temperature was 104° F., pulse somewhat rapid, but not as rapid as in scarlet fever; there was no soreness of the throat, no enlarged glands in the neck or groin. The patient had a dry, measles-like cough; the eyes were very watery. The eruption present was a pronounced bright red scarlatiniform erythema, which disappeared on pressure; the eruption involved the entire cutaneous surface; it was not punctate. On the anterior surface of the chest were three or four large vesicles, not surrounded by an areola of redness, and there was one on the chin. The following day the erythema had disappeared and the child was well broken out with varicella. No desquamation followed. The catarrhal inflammation of the conjunctivæ, with a profuse watery discharge and the absence of puncta, stamps this erythema as something special. The reason for believing that it is a prodromal rash is the same as for believing that the scarlatiniform rash of variola is prodromal, and not accidental—that is, its relation to the disease. The illness begins with the appearance of a special kind of erythema, and as soon as the varicella is fully developed the temperature falls to normal.

E. J. COWEN.

Acute encephalitis of children (*'Bull. M'd.,'* No. 5, 1906, and *'Gaz. Med. Ital.'* No. 6, 1906).—**Comby** draws attention to this important affection, an acute diffuse encephalitis, first described by Strümpell in 1884 under the name of polio-encephalitis. Suppurative encephalitis and cerebral abscess are excluded. With regard to etiology it must be borne in mind that the brain in children is vulnerable to acute toxic infections, hence influenza holds the first place. Comby has seen a number of children who after mild grippal infection presented convulsive attacks, usually epileptiform in type, sometimes general, sometimes limited to one side and followed in some cases by transitory hemiplegia or hemiparesis. In one case there were convulsions localised to the right arm, followed by paralysis and contracture which was only cured after some months. Prickett and Batten report a fatal case of acute grippal encephalitis. Other causes are pertussis and toxic gastro-enteritis (Concetti). The only lesions recognised are diffuse vascular modifications, congestion of the brain surface, and punctiform hæmorrhage. In Prickett and Batten's case the meninges and sinuses were healthy, there was pallor of the brain surface, notable flattening of the convolutions, especially the left (there had been right hemiplegia). Horizontal section showed the subcortical vessels injected, especially on the left side; the nuclei and internal capsule were normal. The microscope showed thrombosis of the small vessels with small extravasations of blood in the subcortical area. The cortical cells slightly cedematous with turbid

protoplasm, but normal nuclei and nucleoli. Similar lesions in the bulb, cerebellum and medulla. In cases which become chronic and develop spastic hemiplegia, athetosis, hemichorea, or idiocy, the congestive process presumably leads to a cortical sclerosis, with or without degeneration of the underlying white bundles. These anatomical lesions are the result of various toxic infections on the vulnerable brain of the child. *The meninges are always unaffected.* Symptomatology: Sudden commencement, generalised or localised convulsions, often epileptiform, comatose condition, contractures, etc. Afterwards there develops a hemiplegia, flaccid or spasmodic, or athetosis, chorea, ataxy, disseminated sclerosis or even a psychosis. After the attack the intellect may be unaffected or dulled; sometimes complete imbecility results. Three forms can be differentiated—first, benign, of short duration, in which the brain is slightly affected. Probably to this group belong many of the convulsive and spasmo-paralytic accidents which complicate the infectious diseases of children; second, severe, resulting in paralysis, contractures, etc.; third, still more severe, resulting in death, or in a cerebral sclerosis of greater or less extent. Prognosis varies according to the above varieties; many children succumb in the acute stage. According to Comby, Concetti and Batten, chorea and ataxic phenomena are nearly always curable when the intellect remains unaffected. Diagnosis is not easy; the infantile eclampsia, which so often usher in acute infections, must be excluded; since the convulsions are often epileptiform, epilepsy must also be excluded. Focal lesions of the brain (tumour, hæmorrhage and softening) have their special symptomatology. Meningitis, tubercular or otherwise, presents nuchal rigidity, vomiting, constipation, headache, irregular pulse and respiration, etc. Lumbar puncture removes all doubt. In encephalitis the cerebro-spinal fluid is unaltered and contains neither lymphocytes nor polynuclears, while lymphocytosis is the rule in tubercular meningitis and polynucleosis in other kinds of meningitis. In meningeal hæmorrhage the fluid is blood-stained. Treatment: Ice to the head, magnetisation (*sic*) of the mastoid processes, purgative enemata and calomel in fractional doses. To allay fever and excitement tepid baths (34° to 35° C.) every three or four hours, and of five or ten minutes' duration. For the convulsions enemata of bromide (20 centigr.) or chloral (10 centigr.) in 50 gr. of boiled water, two to four times daily. After the acute stage iodide of potassium may be given.

VINCENT DICKINSON.

Epilepsy ('*Pediatrics*,' 1905, p. 767, by courtesy of Editor of '*St. Louis Medical Review*').—**W. P. Spratling** discusses some of the more unusual forms of epilepsy. The so-called *psychic epileptic equivalent* is a period of mental disturbance which replaces an ordinary seizure. Probably it is always associated with an attack which may be mild and almost unrecognisable, being a sequel rather than an equivalent. The true epileptic equivalent state is an acute insanity, during which any crime may be committed. *Psychic epilepsy* is usually unaccompanied by muscular spasm, except perhaps some fine fibrillary twitchings about the mouth. The patient is generally harmless if unopposed. The instinct of self-preservation is automatically preserved. The condition lasts for a few seconds up to several weeks. When prolonged, the patient acts as a pure automaton. It is often followed by prostration and violent headache. *Tetanoid epilepsy* was first noted by Pritchard in 1882. It is a brief state of great rigidity, very rare, dangerous, and liable to be mistaken for tetanus while the tonic spasm lasts. *Myoclonus epilepsy* was described by Unverricht in 1891 as "family myo-

clonus." It is characterised by paroxysmal, asynchronous, bilateral, rapid contractions of the muscles of the trunk and extremities, coincident with grand mal; generally hereditary, most frequent in adolescence, and very incurable.

EDMUND CAUTLEY.

A leukæmic leukæmia (*'Arch. of Pediat.'* 1905, p. 899).—**A. Hand** reports a case under this name in a boy aged $2\frac{1}{2}$ years. An illness of six weeks was characterised by increasing pallor, constipation, and œdema of feet and eyelids. Numerous subcutaneous hæmorrhages occurred. The liver and spleen were palpable. The urine contained no albumin. Blood-count: 1,390,000 red cells; 6300 white cells: 23 per cent. hæmoglobin. The case was regarded as purpura hæmorrhagica, but as the axillary and inguinal lymphatic glands became palpable in a few days a differential count was made, yielding: lymphocytes, 85 per cent.; polymorphonuclears, 8.85 per cent.; large mononuclears, 4.73 per cent.; myelocytes, 1.42 per cent. The red cells showed microcytes, macrocytes, poikilocytes, and myelocytes. Death resulted from hæmorrhage, fever, and exhaustion a few days later. No autopsy was obtained.

EDMUND CAUTLEY.

Fat indigestion from mother's milk (*'Arch. of Pediat.'* 1905, p. 905).—**W. P. Northrup** reports a case in a baby, aged 8 weeks. The mother ate largely, took no exercise, and was always indoors. The child took five ounces by weight at regular intervals. Colic was frequent. Stools, olive green to brown in colour, were frequent and contained curds, mucus, and much gas. The mother's milk contained 8.98 per cent. fat, 1.28 proteid, 6.29 sugar. Evidently the child had an attack of ileo-colitis due to excess of fat in its food. For some time it was unable to digest milk in any form.

EDMUND CAUTLEY.

Acute yellow atrophy of the liver (*'Arch. of Pediat.'* 1906, p. 81).—**A. H. Wentworth** reports a case in a boy, aged 5 years. The diagnosis was not made during life. He had had tuberculous peritonitis at eighteen months of age, recovering without operation in about six months; pneumonia of left lower lobe in the fourth year of life; and catarrhal jaundice for one week, two months before onset of the fatal illness. His illness began with slight jaundice, vomiting, and slight malaise. The appetite remained fairly good, the bowels were constipated, and there was no fever throughout. He was up and out of doors until within four days of death, having only symptoms of slight catarrhal jaundice. On the sixteenth day he became delirious at night, cried out, and tried to get out of bed. When seen next day he was somnolent, deeply jaundiced, with normal pupils, absent knee-jerks, normal breathing, pulse 96–100, temperature 99.4° F. The liver extended $1\frac{1}{2}$ cm. below ribs. Spleen not palpable. Bowels not open for three days. On the eighteenth day he was delirious and violent in the early morning. Gradually he became stuporous and unconscious. Profuse epistaxis of dark, non-coagulable blood occurred at mid-day, and the child died three hours later. The pulse remained good to the end, but respiration became superficial and irregular, and cyanosis and marked tonic contractions of the muscles terminated the scene. At the autopsy there were found adhesions, old caseous masses, a liver undiminished in size, normal gall-bladder, enlarged spleen, dark blood in the stomach and intestines, and caseous and calcareous mesenteric glands. The bronchial glands were normal. The cut surface of the liver showed areas of a bright greenish-yellow colour

on a dark-red background. Except for these areas the substance appeared dark-red and homogeneous. On microscopical section, the dark-red substance showed no liver-cells, and the greenish-yellow areas consisted of more or less altered liver-tissue. No necrotic liver-cells could be distinguished. The capillary bile-ducts were dilated. Thus, the size and consistency of the liver were quite unlike what is usual in acute yellow atrophy, yet the liver-cells were destroyed in at least three fourths of its substance. The urine was not examined for leucin and tyrosin.

EDMUND CAUTLEY.

Recurrent attacks of cyanosis in infants (*Montreal Med. Journ., February, 1905*).—**William Morrow** relates two cases of weakly children, one being premature and only weighing 5 lb. at birth, who during the first month of life had attacks of cyanosis with very shallow respiration; recovery from these attacks appeared to be due to artificial respiration. Each child had several of these attacks, one child is now living and apparently quite healthy; the premature child died from asthenia. No necropsy was made. The seizures lasted from five minutes to half an hour; there were no convulsions. The author discusses the possibility of some cerebral lesion, laryngismus stridulus, morbus cordis, and tongue-swallowing, but considers these do not explain the symptoms satisfactorily; he thinks they might be due to congenital atelectasis, and Holt has described similar symptoms in children in whom this condition was found at the necropsy.

J. PORTER PARKINSON.

Bronchial birth palsy (*Amer. Journ. Med. Sci., November, 1905*).—**Clark, Taylor, and Prout** find that tension invariably produces lesions of these nerves at the same point, and that the nerves are made tense when the shoulder is obstructed at the brim of the pelvis, or when the head is pulled by the accoucheur, especially if rotation or oscillation of the head occurs; it may also occur in breech presentations if the shoulders be pulled upon during delivery of the head. In the cadaver the fifth root gives way first, then the sixth, and so on, and clinically the mildest cases show paralysis of the muscles belonging to the fifth root only. There is a rupture of the perineurium and the foundation of a small hæmatoma, then in some cases rupture of a few or more of the nerve-fibres just above the junction of the fifth and sixth nerves. The symptoms are as follows: the arm hangs powerless and cannot be abducted owing to paralysis of the deltoid and supra-spinatus muscles, the forearm is extended and cannot be flexed owing to paralysis of the biceps, brachialis anticus, and supinator longus; the hand is in extreme pronation owing to paralysis of the biceps and supinator brevis. The humerus is rotated in from paralysis of the supra- and infra-spinali and the teres minor. If the limb be tender and painful there is a traumatic neuritis and considerable paralysis may follow; if these symptoms are absent recovery always occurs. Electrical tests are not satisfactory. Recovery occurs in six to nine months in mild cases. Treatment is massage, passive movements, douches, and electricity, but if complete recovery has not occurred by the end of a year excision of the cicatricial areas and nerve-suture is the only rational treatment.

J. PORTER PARKINSON.

Vulvovaginitis in children (*The Post Graduate, March, 1906*).—**Herman Sheffield** divides this disease into catarrhal, traumatic, and parasitic; of the latter variety the chief cause is the gonococcus, the diagnosis of which is made by the discovery of that organism in the greenish-

yellow discharge. The disease frequently runs a very virulent course, and in hospitals or asylums may spread rapidly, requiring many months for its complete arrest. Its chief danger is its tendency to severe complications, such as purulent ophthalmia, peritonitis, salpingitis, arthritis, and even endocarditis. The treatment recommended is to wipe away all pus from the vulva, gently inject into the vagina a 5 per cent. solution of bicarbonate of soda, and follow this by an injection through a soft rubber catheter of half an ounce of a 1 to 5 per cent. solution of protargol, allowing this to remain in the vagina for five minutes. This should be repeated three to four times a day. If this be impracticable, crayons of protargol and iodoform, a grain of each, extract of belladonna, $\frac{1}{12}$ th grain, and cacao-butter can be used instead.

J. PORTER PARKINSON.

Chorea in a child aged 2 years (*Montreal Med. Journ.*, March, 1906).—**Ridley Mackenzie** mentions the case of a well-developed female child, aged 2 years and 3 weeks. A month previously she had an erythematous rash, and the following day swelling of the ankles and hands, with pain and fever; a cardiac lesion developed. Another attack of fever and joint-pains succeeded and shortly subsided under treatment with salicylates, but a week later chronic spasms appeared, affecting chiefly the mouth, tongue, lips, and arms, but later on the trunk was also affected. These movements persisted for a month, but the cardiac condition remained unchanged.

J. PORTER PARKINSON.

Bottle feeding and tuberculosis (*Johns Hopkins Hospital Bulletin*, February, 1906).—**Knopf** says that bottle feeding is a very frequent predisposing cause of tuberculosis in children. We should feel keenly on this subject, for when mothers of one generation fail to nurse their children, the next generation has more difficulty. The majority of mothers can nurse their children, at least in part, and the female child will receive from such a mother the ability to nurse her child in turn. Although there may be some discussion as regards transmission to man of bovine tuberculosis, it is not safe to give milk to a child unless the cow has been found non-tuberculous.

JAMES BURNET (Edinburgh).

Case of general paralysis of the insane in a boy (*Lancet*, February, 3, 1906).—**J. R. Lunn** exhibited before the Clinical Society at its January meeting a boy, aged 16 years. The patient was one of eight children and the mother stated that he was always untrustworthy with money and prone to steal. He had had three fits of unconsciousness in 1905, since which time he had become duller in intellect and had had occasional twitchings of the left arm and leg. When walking the left arm was flexed and he dragged his left leg, and there was some weakness of the muscles elevating the mouth. The speech was affected, but there were no tremors. The left pupil was larger than the right. There was no history of syphilis. The diagnosis given was considered doubtful by Mr. Lunn.

JAMES BURNET (Edinburgh).

Elephantiasis Neuromatosis in a girl aged eleven years (*Lancet*, February 17, 1906).—**Ludford Cooper** showed this patient at the Ophthalmological Society's meeting in February last. There was much deformity of the right upper eyelid and temporal region. The lid was pendulous and all its structures were greatly hypertrophied. The lid was also considerably

everted. The patient was unable to lift it, and it could with difficulty be raised so that it could be seen. The lens was opaque, but the tension was normal. The outer and lower portions of the frontal bone and of the squamous portion of the temporal bone were much more prominent on the affected side. The condition was congenital and was slowly increasing.

JAMES BURNET (Edinburgh).

The complications of scarlet fever (*'Brit. Med. Journ.,'* February 24, 1906).—**W. Hunter** writes that in addition to the well-defined symptoms some cases present rigors and diarrhœa, while a few have pains in the limbs and others epistaxis. The complications are set down as follows: adenitis, 19 per cent.; albuminuria, 21 per cent.; actual nephritis, 2·8 per cent.; otorrhœa and otitis, 6·4 per cent.; rhinitis and rhinorrhœa, 6·4 per cent.; rheumatism, 4·3 per cent.; and secondary tonsillitis, 3·5 per cent. We also find mastoiditis, meningitis, optic neuritis, and ocular paralyses coming on after some cases of this disease. On the whole a severe rash is more likely to be followed by complications than a mild one. There seems to be no definite relation between the height of the temperature and the occurrence of complications. The severity of the disease and the septic complications of it are largely influenced by the degree of oral sepsis in the patient when the disease commences. Of cases without oral sepsis only 35 per cent. had complications of moderate or severe degree, whereas of cases with oral sepsis 65 per cent. developed such complications. Our first duty is, therefore, in every case to get rid of this great danger, oral sepsis.

JAMES BURNET (Edinburgh).

A case of confluent varicella (*'Lancet,' February 24, 1906*).—**J. T. Neech** had under his care a female child aged 4 years suffering from a mild attack of scarlet fever. She did well until the evening of January the 3rd, when she suddenly developed a temperature of 102° F. One or two papules on the face and body were then present, and on the following morning a profuse crop of both papules and vesicles appeared all over the body and legs. The skin generally was very much congested when the rash appeared. The papules which had appeared on the previous day had now become pustular. The temperature remained near 102° F. during the 4th, but on the morning of the 5th it fell to normal. In the meantime the vesicles increased in number and size and became confluent on the body and especially on the thighs, many of them being umbilicated. On the evening of the 6th the temperature again went up to 101·4° F., which was followed by a further crop of papules and vesicles on the face, head, and arms, almost as profuse as the former crop on the body. A number of the vesicles on the body and legs had now become pustular. On the evening of the 7th the temperature fell to 99° F. It rose again to 100·4° F. on the 8th and fell to normal on the 9th, and afterwards remained there. There was œdema of the face, a great many of the vesicles became pustular, and the fœtor was more marked than in many cases of smallpox. Desiccation was not complete until about January the 31st. The eruption appeared on the palms of the hands and the soles of the feet, but the amount in these situations relative to that which appeared on the arms and legs was very much less.

JAMES BURNET (Edinburgh).

Congenital hypertrophic stenosis of the pylorus (*'Lancet,' March 3, 1906*).—**H. J. Paterson** in his Hunterian lectures refers to this condition under the term "infantile," for he maintains that the hypothesis that the

disease exists before birth has not yet been verified. There can be little doubt as to the possibility of recovery without surgical intervention. Cases of such recovery have now been recorded, most of them occurring after daily lavage. These facts should make us pause before advocating operation, and it is important to note in the cases which have been treated successfully without operation, vomiting has diminished, and finally ceased, only after some weeks of regular treatment. Therefore a very thorough and extended trial should be given to careful feeding and regular lavage before resorting to surgical measures. In private practice the services of a wet-nurse may be requisitioned. It is noteworthy that in many of the cases treated successfully by Loreta's operation vomiting has not ceased immediately, and the feeding of the infant has required much care and patience for some time. Had this patience, he says, been exercised before operation, possibly the necessity for operation might not have arisen. Present experience seems to indicate that if these cases are recognised early and treated by systematic lavage and fed by the breast, there is a reasonable prospect of recovery. Whether this recovery is absolutely permanent time alone can show. At any rate, if operation can be delayed until the infant is older and stronger, something will have been gained. With regard to operation four different procedures have been adopted, namely pylorotomy, gastro-jejunostomy, pyloroplasty, and pylorodiosis or Loreta's operation. Pylorotomy may be at once dismissed as quite unsuitable for such young patients. The first successful case of gastro-jejunostomy for this disease was performed by Löbker in July, 1898. Of all the cases of this operation recorded, only twelve recovered from the immediate effects, while three of these died later. In the remaining nine patients the after-result was excellent. The patients who were the subjects of the first three successful cases are still alive. Pylorodiosis has been performed twenty-one times, with six deaths and fifteen recoveries. The patient in the first successful case recorded by Dr. Archol was in good health four years after operation. Relapse occurred in several of this operator's later cases, and he now advises that gastro-jejunostomy should be performed as well as pylorodiosis, although he does not explain why the double operation is necessary. The first pyloroplasty was performed by Braun, and the child died from shock twenty hours later. Of nine recorded cases six recovered and three died. In many other cases there has been trouble with the feeding, a serious matter when the condition of the child before operation is considered. So far the after-results in the cases which have survived have been excellent. So much turns on the condition of the infant at the time of operation that it is impossible to estimate the relative mortality of these different procedures, and it is probably on this factor and on the skill of the operator, rather than on the particular operation adopted, that the immediate result depends. Surgical intervention in these cases is always a serious matter, and every effort should be made to obviate the necessity for it. On the other hand, we must guard against delay until the child is in such a condition that recovery is almost hopeless. Pylorodiosis appears to be the least severe procedure, but the after-results can hardly be considered satisfactory. The choice, therefore, lies between pyloroplasty and gastro-jejunostomy. Pyloroplasty is not always so easy as its advocates would have us believe. Whether the remote results will prove as satisfactory after pyloroplasty as after gastro-jejunostomy we do not know. The lecturer believes the latter is better for five reasons: (1) It is preferable to operate on normal than on morbid tissues; (2) feeding can be commenced at once after the operation; (3) the time required for operation is very

slightly longer than for pyloroplasty; (4) an incision of two and a half inches is sufficient; (5) the remote results are highly satisfactory; we do not yet know that those of pyloroplasty are so good.

JAMES BURNET (Edinburgh).

Pathology.

Tuberculosis in a breast-fed infant ('*Arch. of Pediat.*,' 1905, p. 922).

—**F. M. Fry** and **H. S. Shaw** report a case of acute miliary tuberculosis, secondary to basal pulmonary phthisis with cavity. The mesenteric and mediastinal glands were large and caseous, the liver large and extremely fatty; and the spleen enlarged. The baby, a female 12 months old, had had cough for six months. Several weeks before death she rapidly became anæmic, wasted, and vomited frequently. She was entirely breast-fed. The parents were free from evidence of tuberculosis, and no source of infection could be traced. The post-mortem evidence was in favour of respiratory infection. Neither the mucous nor the peritoneal coats of the bowel were invaded.

EDMUND CAUTLEY.

The uniform lineal growth of the fœtus ('*Lancet*,' February 3, 1906).—**R. C. Roberts** recalls the fact that we have only to multiply the lunar month of gestation by five and we get the length of the fœtus in centimetres at the particular month. Hence we have the general rule that the length of the fœtus is a "lineal function of the time" nearly—that is, its length is directly proportional to its age. The fœtus from the third month onwards does not change its shape very much as it increases in volume, and so we find that the fœtus increases in breadth and depth at a uniform rate with the length and therefore with time. The specific gravity of the fœtus from the third month onwards does not change much. Hence the "mass" or "weight" of the fœtus is directly proportional to the volume of the fœtus at any period. The weight of the fœtus at the end of every month is well known. So if we can show that the weight—and consequently the volume—of the fœtus is directly proportional to the cube of the length, it must increase in all three directions of space at a nearly uniform rate. But as the length of the fœtus is proportional to the month of gestation, the volume will be proportional to the cube of the age of the fœtus. Hence the weight will be proportional to the cube of the age. Roberts further states that the weight of the fœtus can be deduced by taking the cube of the corresponding month and dividing it by a figure, 104, which gives the answer in pounds, correct to within one ounce at the third month, and absolutely correct at full term. This rule does not hold good prior to the third month, but will be found very useful in determining the weight subsequently.

JAMES BURNET (Edinburgh).

A saccular dilatation of the small intestine ('*Lancet*,' February 17, 1906).—**Cautley** records the case of a female infant, aged 5 weeks, who was admitted into hospital with a history of vomiting since the third day of life. This had steadily persisted and after the seventh day had been associated with diarrhoea. The vomiting followed every meal. Both vomited matter and stools were green. She was a first child and weighed 4 lb. 13 oz. The abdomen was unduly prominent at the right side and a tumour about the size of a pullet's egg could be felt to the right of and on a level with the umbilicus. This tumour was fairly movable, elastic,

sometimes dull on percussion, at other times resonant. It disappeared entirely after moderate gentle manipulation. The liver dulness in front was completely absent and an inguinal hernia was present on the left side. For a time the patient improved under treatment, but eventually developed carpopedal contractions, and became cyanosed and unconscious. She died from asthenia, the vomiting and diarrhoea having been in obedience. The autopsy revealed the presence of a cyst immediately below the liver and pushing this organ upwards. This cyst was larger than the stomach and was situated in the mesentery, arising from the gut at a distance of fifteen inches from the pylorus. It communicated with the gut by two adjacent openings close together, the larger one being as big as a threepenny-bit and the smaller one quite minute. The duodenum and a small part of the jejunum above the origin of the cyst were much dilated and hypertrophied, while below the intestine was thin-walled and collapsed. Both cyst and intestine contained normal bile-stained contents. Microscopically the wall of the cyst was identical with that of the intestine from which it arose, the muscular tissue being considerably hypertrophied.

JAMES BURNET (Edinburgh).

Otology, Laryngology and Rhinology.

Congenital laryngeal stridor (*'Arch. of Pediat.'* 1905, vol. XXII, p. 881).—H. Koplik reports a case in a male infant. Symptoms began at 3 weeks of age, and death resulted from broncho-pneumonia at 12 months of age. The thymus weighed 25 grammes, but caused no local dulness during life. The epiglottis was curved backwards and lay over the superior opening of the larynx. The lateral borders of the epiglottis were in contact, having a narrow slit. The ary-epiglottic folds were thin and almost in contact, and the opening of the larynx was smaller than normal. Laryngeal stridor appears, or is noticed, shortly after birth. A peculiar crowing or grunting sound is heard almost always only on inspiration. During excitement it may simulate the crowing of laryngismus stridulus. It must not be confused with the noisy breathing due to adenoids, nor with "thymic asthma." It is ascribed to a congenital malformation of the larynx and epiglottis. Autopsies on fatal cases recorded by Lees, Refslund, and Variot showed the same anatomical peculiarities as in Koplik's patient. (I have an identical specimen, which I propose to exhibit shortly.—E. C.) In Variot's child the stridor existed from birth, so could not be the result of a post-natal factor. John Thomson and Turner, of Edinburgh, have elaborated a theory that "the primary element in the causation of this condition is a disturbance of the co-ordination of the respiratory movements, probably due to some developmental backwardness of the cortical structures which control them." Such a theory needs much confirmation in view of the anatomical anomalies found post-mortem. An enlarged thymus may co-exist, but is not a causative factor.

EDMUND CAUTLEY.

Adenoids as a cause of disease in children (*'Med. News,'* October 28, 1905).—T. A. Donovan points out that apart from the symptoms and facial deformity which are the direct result of adenoids in children, very considerable predisposition to other diseases is present in children suffering from adenoids. Thus all forms of infective disease are more easily and readily acquired if adenoids be present, and the lowering of general nutrition is also an important factor. In discussing the diagnosis he points out that the mirror is almost useless in children, but that by elevating the

palate with the head thrown well back a view of the adenoids may sometimes be obtained. He lays special stress on the importance of early operation and operating at the earliest opportunity, and in care in the after-treatment—especially in teaching nasal respiration and the proper use of the handkerchief.

P. LOCKHART MUMMERY.

Therapeutics.

Formic aldehyde as a milk preservative (*Scot. Med. and Surg. Journ.*, November, 1905, p. 398).—**Carstairs Douglas** has made a series of experiments to determine the preservative value of formic aldehyde and the effects which it would have on the dietetic value of milk. He found that with a large amount of formic aldehyde present no souring occurred, but that the milk kept sweet at first and later on underwent a putrefactive change. On the other hand, when the preservative was used of less strength, namely, 1-20,000, the milk, when it did begin to change, underwent ordinary souring. The action of the bacillus of lactic acid was thus merely delayed, not prevented. This is an important matter because it has been said that the use of such a preservative would be really harmful, as it would mask the changes taking place in milk through the activity of the organisms of putrefaction, and that as the danger signal of "souring" would be wanting, such a milk might be consumed and do much harm. The conclusion he arrived at was that milk with the preservative added in the strength of 1-20,000 would simply keep sweet for a slightly longer period than it would otherwise, and would become "turned" in due course like any ordinary specimen. It would, therefore, not be considered fit for drinking long before any putrefactive changes had set in. To keep milk sweet for 30 hours from the time of milking, a strength of 1 in 40,000 would be necessary and for 48 to 72 hours a strength of 1 in 30,000. The effect of formic aldehyde on the digestive functions was also tested by means of rennin, liquor pepticus, and pancreatic extract. These experiments led him to conclude that this preservative does not retard digestion when present in such proportions as from 1 in 25,000 to 1 in 50,000. Viewing the subject of milk preservation as a whole he says that as preservatives are constantly used in varying and often excessive amounts, it might be better if the use of certain preservatives were allowed, provided always that their nature and amount were clearly stated. If this were agreed to, he puts in a plea for the claims of formic aldehyde in such proportions as 1 in 30,000 and 1 in 40,000, believing that the ban under which it lies at present might be removed.

G. A. SUTHERLAND.

Mercurial inunctions in tuberculous meningitis (*Lancet*, March 24, 1906).—**Whitcombe-Brown** records the case of a child, aged 1 year, who was heavy and drowsy, with quick pulse, rapid breathing, and a temperature of 104° F. She had been fretful for some weeks previously. She became worse, and gradually showed semi-unconsciousness, which deepened into coma. She developed the cephalic cry. Vomiting, which had already set in, now increased. She was deaf and blind, and the pupils did not react at all. There was no strabismus or abdominal retraction. Mercurial inunctions were commenced, and she was also given a mixture containing perchloride of mercury, combined with iodide and bromide of potassium. In about five days' time she began to show signs of improvement, and slowly but gradually recovered. Two other medical men independently confirmed the diagnosis.

JAMES BURNET (Edinburgh).

The treatment of acute nephritis in childhood (*Internat. Clinics*, vol. ii, series 15).—**Morse** emphasises the importance of sparing the work of the kidney. This necessitates a study of the caloric needs and metabolism of a child. These are roughly as follows: The caloric need in calories per kilo are—at four years 75 calories, eight years 60 calories, twelve years 50 calories. The albumin need with the total calories is—four years 1125 calories or 32 grams proteid, eight years 1325 calories or 36 grams proteid, twelve years 1600 calories or 44 grams proteid. The substances which are difficult for the kidneys to excrete are urea, creatinin, phosphates. Meat is therefore interdicted, but as milk contains a large amount of proteid the author considers it harmful in the acute stage in large quantity. The minimum proteid requirement for a child of eight years is 900 c.c. of milk, but twice this quantity is necessary to supply the caloric need. By increasing the amount of cream in milk we increase its caloric value, but to render this mixture digestible too much water must be added; so instead it is suggested to give two slices of bread to an ounce of butter, which gives 375 calories, and four tablespoonfuls of oatmeal with two teaspoons of sugar, which gives 125 calories. It is unwise to give much water in the early stage, as the effort to eliminate this may increase the engorgement of the kidney; later, however, water should be given to flush out the kidney and dilute the substances to be excreted. Cathartics and diuretics are very useful in children.

J. PORTER PARKINSON.

Opothorapy. Injection of lymphatic gland extract (*Le Progrès Méd.*, 1905, No. 50).—**Vidal** has continued his experiments, and in the last group of 51 cases reported are 12 children affected with bronchopneumonia (1), pertussis (3), Sydenham's chorea (1), tonsillitis (2), diphtheria (2), measles (2), typhoid (1). Two c.c. of the extract appear to have been the dose. The results were negative in the pertussis (eight, eleven, four injections) and in the typhoid (six injections). In the tonsillitis the symptoms lessened after three to five injections, and cure was rapid. In the diphtheria he injected simultaneously Roux's serum and gland extract. The two cases, brother and sister, aged 3 and 5 years, had a severe form, one pharyngeal, the other with extension to larynx; the first had 30 c.c. of anti-diphtheritic serum in three injections and 12 c.c. of gland extract in six injections, two daily; the second, 40 c.c. serum in three injections, and 12 c.c. gland extract in six injections. In both cases the disease yielded rapidly, and the sudden return to health without convalescence or anæmia was most striking after the severe attack which usually leaves children anæmic after a long convalescence. Neither had any of the cutaneous complications common after injections of Roux's serum. The two cases of measles were severe; one of the children, aged 5½ years, had a confluent form, with intense ulcerative stomatitis, hyperpyrexia, and adynamia. From the fifth injection a marked improvement set in which was maintained until cure resulted. In the second, the invasion period was characterised by a series of convulsions lasting six days, with marked oscillations of temperature. The eruptive stage brought no relief to these symptoms. Injections were given twice daily, 20 c.c. in all, and recovery took place without any further complication than a trivial bronchitis. The case of chorea was in a girl aged 11 years, and presented the true "folie musculaire" of Bouillaud, without sleep, with great difficulty in taking nourishment. Antipyrin in large doses, antinervines, wet packs, tonics, etc., gave no relief. Injections of gland extract were then given on account of

the relation of chorea to certain microbic infections—*i. e.* tonsillitis and acute articular rheumatism; 1 c.c. was given twice daily, and on the fourth day the movements diminished at night, and sleep was obtained. On the twentieth day the child could walk. A slight ocular spasm alone remained. The injections, in doses from 1 to 5 c.c., give no pain. VINCENT DICKINSON.

Alimentation in infantile gastro-enteritis ('*La Presse Médicale*,' 1905, No. 92, p. 740).—**Comby** lays great stress on the merits of a vegetable decoction prepared thus: A soup-*spoonful* (30 grammes) of corn, pearl barley, crushed maize, dry beans, dry peas, and lentils, boiled for three hours in three litres of water; 20 grammes of salt are then added. There remains about a litre, to which flour may be added in the proportion of a *teaspoonful* to 100 grammes. The decoction must be freshly prepared. With this vomiting ceases, diarrhoea diminishes, and the weight increases, not to be explained by assimilations of the nutritive contents of the decoction, but by the "re-hydration" of the children which a watery diet is not sufficient to effect. The decoction contains not only water but a large proportion of chloride of sodium, which plays a part in retaining water in the tissues. The increase of weight is important and rarely seen except with salted decoctions and with butter-milk. Analysis of this decoction shows that it is very rich in albuminoids and hydrolysable sugar, a litre containing about 8 grammes of each, which gives it a real alimentary value. This explains the results obtained, which the salt alone could not do; it explains the immediate increase by "hydration" but cannot insure the continuance of this increase any more than injections of artificial serum. The chloride of sodium has one drawback—it sometimes produces subcutaneous oedema of the hands and feet. This may be reduced by diminishing the salt, but then the decoction would be too insipid, as it is so already with the 20 grammes per litre. On the other hand, the stimulant action of the salt is useful, and it is better to put up with the oedema, which is not common, for the sake of many other advantages it has where milk is not tolerated.

VINCENT DICKINSON.

Surgery.

Gummatous synovitis of many joints ('*Glasg. Med. Journ.*,' January, 1906).—**Findlay** and **Riddell** report the case of a girl, aged 9 years, who had suffered for two years from pain and swelling in all the joints of the extremities. She had had "snuffles" as an infant, and had gone through a course of "powders" for six months. There was evidence of recent interstitial keratitis and the teeth were typically Hutchinsonian. Both knee-joints were distinctly swollen, and on the left side there was limitation of movement. The thickening seemed to be partly synovial and partly bony, and slight creaking could be detected. The ankle-joints were unduly thick. The metatarso-phalangeal joints of both big toes were swollen, tender, and painful, and creaked very markedly. The shoulder-joints appeared large, and limitation of movement and creaking were present. Both wrist-joints and both elbow-joints were swollen and defective in movement. The smaller joints of the hands were also markedly affected. The muscles of the upper extremities appeared to be wasted, but those of the lower limbs were unaffected. There was a definite enlargement of most of the superficial lymph glands, while the spleen could just be felt on palpation. Under treatment with iodide of potassium and mercury, along with high frequency

currents, she had greatly improved at the end of three weeks, although the joints were still painful and tender. The writers consider that this was not a case of rheumatoid arthritis, as had been at first diagnosed, but one of of syphilitic arthritis. Skiagrams showed an absence of pathological changes in the bones and cartilages, and demonstrated that the lesion was thickening of the soft tissues about the joints. G. A. SUTHERLAND.

Surgical treatment of tuberculous glands in the mesentery ('*Lancet*,' December 23, 1905).—**Corner** is of opinion that an operation for removal of tuberculous glands from the mesentery of the intestine ought to be adopted, and that in some cases a fatal result may ensue if this condition is not submitted to early surgical treatment. The mesenteric glands are the second most frequent source of general tuberculous infection of the body. A judicious caution must temper our enthusiasm in selecting cases for operation. Experience shows that these glands must form a palpable mass before being submitted to surgical treatment. Great care must be exercised in distinguishing tumours due to tuberculous peritonitis from those due merely to tuberculous glands. A child with a movable tumour in the abdomen, not faecal, should be submitted to operation. Medical treatment, however, should be pursued throughout. Corner further points out that tuberculous mesenteric glands are by far most frequently met with in children. Tuberculous mesenteric glands are always found in association with tuberculous peritonitis in all its forms; but tuberculous mesenteric glands may occur apart altogether from this condition, and be associated rather with a tuberculous enteritis, although this is by no means always the case. The tumours formed by tuberculous peritonitis are only exceptionally movable, whereas the palpable masses of tuberculous mesenteric glands are easily moved about. It is important to make this distinction as to mobility between these two classes of tumours, as the treatment and prognosis must largely turn upon this differential point in diagnosis.

JAMES BURNET.

Teratoma of the neck successfully removed ('*Lancet*,' February 17, 1906).—**McGregor** and **Workman** record a very interesting case, that of a female patient, aged 15 days. The tumour, which was large and situated on the left side of the neck, had existed from birth. It extended upwards from the clavicle to the middle of the cheek, and from near the middle line in front to the anterior border of the sternomastoid behind. It projected considerably from the level of the jaw, and its bulk seemed a little less than the size of a closed fist. The measurement over the tumour from the middle line to the posterior edge of the sternomastoid was $6\frac{1}{2}$ inches, as compared with $2\frac{1}{4}$ inches on the normal side. The skin was freely movable over the whole extent of the tumour. Manipulation of the tumour produced noisy breathing, and it was noticed that when the child cried the tumour seemed to project outwards, and to become more prominent. Examination of the mouth revealed no abnormality. There was no difficulty in swallowing, and the taking of food had no apparent effect on the size of the tumour. Under an anæsthetic an incision was made over the tumour. The soft cyst was then incised and its wall rapidly separated from the surrounding structures. The vessels passing through the capsule were ligatured, and then the wound was sutured by a continuous catgut suture. When seen five months after the operation there was no sign of recurrence and with the exception of the redundant skin the neck seemed normal. Dr. Workman's report on the

tumour is to the effect that it was a multilocular cyst. In one or two of the larger cysts was a solid, very vascular growth, which on cutting into the tumour bulged out from the cysts. The latter growth was very soft, while the other parts of the tumour varied greatly in consistence. On microscopical examination the whole tumour was found to be of such a complicated structure that he concludes that it probably originated from an abnormal development of one or more of the branchial arches of the embryo.

JAMES BURNET (Edinburgh).

"School" lateral curvature ('*Pediatrics*,' 1905, p. 749).—H. O. Feiss mentions the various types, as congenital, rachitic, paralytic, static, due to inequality of the legs, and following diseases. The "occupation" variety he regards as of greatest importance, and of this the "school" scoliosis is an important type. It is described by Scholder of Lausanne as a more or less fixed and consolidated oblique position of the trunk which is attained by habit, and is maintained by changes in the bones and ligaments. Thus it passes from a physiological into a pathological condition. Scholder found nearly 25 per cent. of 2314 school children presented a certain degree of scoliosis, both sexes being equally affected. The majority had a left curve. Krug in Dresden obtained similar results. Scholder also found that the percentage of scoliosis and of myopia increased with increasing duration of school attendance. Guillaume in Neuchatel, Aagmann in Moscow, and Kallback in Petersburg found a percentage of scoliosis of 26 to 29. The two chief causes are prolonged and faulty attitude. The faulty attitude may be due to faulty furniture, inclination of copy-book, obliquity of writing or lighting. The most important treatment is attention to these points.

EDMUND CAUTLEY.

The etiology of noma ('*Arch. of Pediat.*,' vol. XXII, p. 818).—C. Herrman publishes a criticism of the etiological aspect of noma, with illustrations of various organisms. He regards noma as a specific necrotic process. The rational treatment consists in the application of Paquelin's cautery to destroy the necrotic tissue and the underlying healthy tissue, which is permeated by the filaments of the micro-organisms. Ulcerative and gangrenous stomatitis are different stages of the same process. Diseased teeth are an important primary factor by producing gingivitis, a condition very favourable to the growth of the organism. The teeth should receive special attention in infectious disease. The organism is a spirochaetes corresponding to the streptothrix of Seiffert-Perthes, and identical with that found by Plant, Bernheim, and Vincent in mouth lesions; identical, also, with the *Spirillum sputigenum* and *Spirochaete dentium* of Miller, found normally in small numbers in the mouth. These are different stages of development of the same organism. It is closely related to the *Bacillus necroseus* found in necrotic processes in some of the lower animals.

EDMUND CAUTLEY.

Strangulated inguinal hernia in an infant of two months ('*Arch. of Pediat.*,' 1905, p. 925).—E. Guion.—An infant born at seven months, weighing 3 lbs., was progressing favourably in an incubator when it became fretful and appeared in pain. An irreducible hernia was found on the right side. Next morning there was evidence of strangulation, prostration, pallor, almost imperceptible pulse, vomiting, and abdominal distension. At operation, without anæsthesia, the gut was greatly discoloured. Four hours

after the child took the breast well. The bowels acted the same day, and a small amount of blood was passed. The child weighed 7 lbs. five weeks later, and the wound looked well.

EDMUND CAUTLEY.

Appendicitis in children: a study of seventy cases (*The Medical News*, September 23, 1905).—**Chas. M. Dowd** of New York, in discussing the very rapid onset of serious symptoms in children, points out that the time from the onset of the attack to the formation of abscess or spreading peritonitis may be less than twenty-four hours. In the seventy cases there were eleven in which either rupture of the appendix or peritonitis had occurred within forty-eight hours of the commencement of the attack. All these eleven cases were operated upon within two days and all recovered. Out of thirty-two children who were operated upon between the third and seventh day after the onset of symptoms, there were four deaths, and out of eight who were operated upon in the second and third weeks there were three deaths. This demonstrates the great importance of early operation in children with appendicitis. The author points out that one important reason for no delay in operating is that peritonitis of an insidious and rapidly spreading type which does not give the ordinary symptoms of peritonitis is very liable to occur in children, and thus the surgeon may easily be misled. He strongly advocates immediate operation in children in all cases. There was no mortality in the twenty-seven interval cases. In discussing the symptomology of appendicitis in children from these seventy cases, the author finds pain constant in all cases, though there was variation as regards position. Muscular rigidity he considers important evidence of appendicitis in children, and believes the abdomen is best not examined under an anæsthetic. Vomiting was constant in this series of cases. In nearly all cases the pulse was rapid and the temperature high—102° or 103° F. Blood-counts were made in eleven of the cases and show that the blood-count is very high as a rule. In five of the cases the leucocyte count was between 27,000 and 52,000. In two of the cases in which there was severe inflammation with abscess, the leucocyte count was low, being 13,500 and 11,000 respectively. The counts in these cases were made on the fifteenth and seventh days of the attack. The author points out that constipation is not always the rule with peritonitis in children, and diarrhœa may be present in some cases. He considers that the percentage of more severe grades of appendicitis is greater in children than in adults.

P. LOCKHART MUMMERY.

Congenital umbilical hernia (*Medical Record*, September 23, 1905).—**Chas. Green Cumston** of Boston divides embryonal umbilical hernia into three varieties. First, umbilical eventration, which is characterised by arrested development of the abdominal walls. In such cases the viscera are only covered by a thin membrane or are free in the amniotic fluid. The membrane forming the sac is a prolongation of Rathkë's membrane. The second variety is the diverticula umbilical hernia, and is due to persistence of the omphalomesenteric duct. The third variety is hernia of the vitelline loop. In all these varieties the contents of the hernia have never been properly inside the abdominal cavity. In the congenital umbilical hernias, the hernia occurs into the cord, and is a true hernia, and the sac is lined by peritoneum. The external integument is formed by dilated umbilical cord. In most cases the sac is transparent at first, but soon becomes opaque. The contents of the hernia vary considerably in different cases,

in the smaller ones it is usually confined to a coil of small intestine, while in the larger the liver forms part or all the contents, and in a few exceptional cases the stomach, kidney, and even the heart have been found in the sac. These congenital hernias are quite commonly found in association with other congenital malformations. Congenital umbilical hernia is comparatively rare, and it has been estimated as occurring once in every two thousand births. At the Charité Hospital in Paris, however, there was no case in over three thousand births. The author discusses at length the numerous different operations which have been from time to time advised or practised for the cure of congenital umbilical hernia. He sums it up by saying that generally speaking simple laparotomy with excision of the sac and suture of the preserved borders of the wound will be sufficient in a large majority of cases. He says operation should be performed as soon as possible.

P. LOCKHART MUMMERY.

Operation for congenital goitre ('*Med. Record*,' September 23, 1905).—**E. W. Peterson** reports the case of a baby with a goitre which grew to such an extent that it caused serious dyspnoea. It was situated in the extreme right side of the neck and was not diagnosed before operation. It was probably goitre of an accessory thyroid. After the removal of the gland there was evidence of profound disturbance, sickness, dyspnoea, high temperature and convulsions.

P. LOCKHART MUMMERY.

The ultimate results after the bloodless reposition of the congenital hip-joint dislocation ('*Med. News*,' October 7, 1905).—**Frederick Mueller** of Chicago reports that of thirty-three cases treated by Lorenz in Chicago, anatomical reposition of the head of the femur resulted in twenty-one and a subspinal position in the remaining twelve. Stiffness of the joint operated upon resulted in four cases, but there was some improvement under continuous treatment. The author speaks favourably of Lorenz's method.

P. LOCKHART MUMMERY.

Correspondence.

PASTEURISED MILK AND INFANT FEEDING.

To the Editor of THE BRITISH JOURNAL OF CHILDREN'S DISEASES.

SIR,—It may not be known to many of your readers that several of the large dairy companies in London are supplying pasteurised milk to all their customers without any indication that the milk has been so treated. This fact was brought to my knowledge in the following manner: At a children's hospital in London the medical staff decided to use pure fresh milk, unchanged by heat, preservatives, or otherwise, for the in-patients. Extra precautions were taken so as to maintain the purity and freshness of the milk, which was to be supplied in sealed and sterilised bottles, and was to be kept on ice. A large dairy company undertook to supply such milk, and did so for about eighteen months. At the end of that time it was accidentally discovered that the milk for about twelve months had been pasteurised at

the dairy. The company, when taxed with this breach of contract, expressed regret, but said that they had acted on high medical authority, and that pasteurised milk was really safer for infants than milk not so treated. Into this question the medical staff did not enter, but proceeded to secure untreated milk from another source.

This action on the part of the dairy companies is one of considerable public importance. In the first place, the pasteurising of the milk is not undertaken by them for the benefit of the infant population, but for the purpose of protecting themselves from spreading typhoid fever or other disease through contaminated milk, with subsequent legal proceedings and heavy damages. They may or they may not be justified in taking this precaution, but their customers are at least entitled to know the fact that the milk has been pasteurised. What is cows' milk? This is a difficult question to answer, but it is certainly inadvisable to allow the dairy companies to plead in the future "the custom of the trade" in selling pasteurised milk when fresh cows' milk is ordered. If pasteurised milk is to continue to be sold it ought to be labelled as such, just as condensed and humanised milks are.

Again, the health of the children may be seriously affected by this action of the dairy companies. At present, and largely owing to medical teaching, it is the custom in many households to boil the milk on delivery. If the milk is first pasteurised by the seller and then boiled by the purchaser, it will be a poor, devitalised sort of food which eventually reaches the infant, and anæmia and scurvy may be expected to follow. These are the results which one would anticipate on theoretical grounds, and practical evidence is forthcoming as follows: Dr. W. S. Colman* relates that a short time ago there was an epidemic of infantile scurvy among children in Berlin supplied with pasteurised milk from an institution, but it was found to be confined to children whose parents, as an additional precaution, boiled the pasteurised milk for some time, after it was delivered to the house. More recently Dr. J. A. Coutts† has recorded three cases of scurvy at the East London Hospital, for which the patients were *ordered* fresh cows' milk, and were further treated in the usual way with raw meat-juice, scraped potato, and lemon-juice. In none of the cases did the usual speedy resolution of the subperiosteal clot take place. "That three consecutive cases of scurvy should take this extraordinary course led to an inquiry, and it was discovered that for several months the dairy company to the hospital had been supplying pasteurised instead of fresh milk, without the hospital authorities being adequately informed of the change. On the substitution of fresh for pasteurised milk each infant began to improve." These facts speak for themselves, and would seem to justify the anticipation that injury to the health of the children and aggravation of their diseases will result if this action of the dairy companies is allowed to continue. More especially will the danger be present if the public and the profession are kept in ignorance of the fact that the milk is being pasteurised.

Yours, etc.,

G. A. SUTHERLAND.

April the 30th, 1906.

* 'The Practitioner,' October, 1905, p. 536.

† 'West Lond. Med. Journ.,' April, 1906, p. 82.

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Original Articles.

ON CHRONIC APPENDICITIS AND THE EARLY DIA-
GNOSIS AND TREATMENT OF ACUTE APPENDICITIS
IN CHILDREN.*

By A. BROCA, M.D.,

*Professeur Agrégé at the University of Paris. Surgeon of the
Hôpital des Enfants Malades.*

MR. CHAIRMAN AND GENTLEMEN,—I could scarcely resist a feeling of pride in speaking before you on this important occasion, were I not called back to modesty by an exact appreciation of the position. For, if you summoned me to deliver this lecture, by which Mr. Wightman desires to perpetuate the memory of a son who too soon departed this life, I am aware that I am indebted for this testimony of esteem to another which my Parisian colleagues, too indulgent also, had favoured me with last year, in calling me to the presidency of our Pediatric Society in Paris.

As their President, I had the pleasure to receive some of you (not numerous enough—allow me this reproach) when you came to Paris and visited our hospitals and great medical establishments. To my

* The Wightman Lecture of The Society for the Study of Disease in Children delivered on Friday, May the 18th, 1906.

French colleagues, through me, is therefore addressed your courteous invitation and appreciation.

"Vous aviez d'ailleurs tiré les premiers, Messieurs les Anglais," by prompting us a few months before to proclaim medically our recent "entente cordiale." With a great feeling of pleasure I personally saw the end of our petty squabbles, which ought by mutual consent, and a long time ago, to have been immolated upon the altar of our common deity—freedom. I am glad to have the opportunity of giving my opinion here, for at that time I was prevented from coming to London, and I can assure you that it was not from any lack of sympathy with the welcome movement.

Now that I have apologised for my unworthiness, I must confess that I answered your invitation with the greatest pleasure; but I should hardly dare to speak before you on such a common topic as the one I have selected had not the first idea of lecturing on this subject come from your Chairman of Council—Mr. Clement Lucas—who had been struck, when he visited my hospital wards, by the great number of children operated on by me for appendicitis. He thought that I might interest you in relating what I have observed these fifteen past years in children, at an age when his own experience seems to suggest that this complaint is more frequent in Paris than in London.

Some authors think that this frequency in childhood does not depend upon a true predisposition: the children being the most numerous amongst the population, the same proportion of cases for a disease whose real frequency is not modified by age must give a larger number in the young. But that alone is not sufficient to explain such a predominant number of cases as we meet with in Paris, where, as soon as appendicitis began to be narrowly studied, important statistics appeared from our two children's hospitals, observed by our regretted Dr. Brun, by Jalaguier, and by myself. I will recall the fact that in 1896 one of my pupils, Miss Gordon, made her inaugural dissertation from my first seventy-nine observations on appendicitis in children, and since then I have operated more and more on patients under fifteen years of age suffering from appendicitis, partly because we have learned to diagnose some cases formerly unknown, and also, it seems to me, because we have had periods of increase, due to the frequent return of influenza to which we have unfortunately been accustomed since 1890.

But if, as I believe from what Mr. Clement Lucas wrote me, the frequency in childhood is greater in Paris than in London, I do not think that influenza is the true cause of that difference, for influenza

has now invaded all countries. If there is a particular cause, my opinion is that it must be sought in the food.

In spite of some opponents, every day lessening, it is forcibly asserted nowadays that appendicitis is but the consequence, the localisation, of an entero-colitis previously more extended. This localisation gets its surgical importance on account of the special anatomical connections between the peritoneum and the appendix, predisposed by its structure to lymphangitic inflammation, even to perforation. But it also seems that all cases of enteritis have not the same tendency to create appendicitis.

Every one of us knows well how frequent is gastro-enteritis among babies not suckled, and who, suffering from diarrhœa or constipation, insufficiently fed or overfed, end, according to the cases, in athrepsia, summer diarrhœa or rickets. It is a fact, nevertheless, that appendicitis is almost never seen in new-born babies. The youngest on whom I have operated was 1 year and 8 months old, and such an age is very exceptional.

One of the causes of this apparent rarity in infancy is, no doubt, the serious clinical difficulties we have to deal with. We are bound, with very young children, to practise an examination almost veterinary, on patients unable to give us any information, unless by screams when we rouse pain by palpation. So the chronic forms, of which I shall speak to you by-and-bye, escape us, and with them no doubt a great number of acute ones. But the fact remains that our medical colleagues, in their post-mortem examinations of nurslings dead from gastro-enteritis, never mention peritonitis of appendicular origin in children under two years of age; they do not even describe the appendix and peri-appendix lesions whose importance we know well in older patients.

This is partly owing to the fact that appendicitis takes a certain time for its formation and for its surgical individuality after the beginning of the causal enteritis; and I think that a few children attacked with appendicitis suffer from food badly digested in infancy. However, I do not believe this to be a rule, and by the observations made at every age and in every country, it appears that the general medical opinion is that an excess of flesh diet may be the origin of enteritis predisposing to appendicitis.

But if you English people, men of the north, eat a great quantity of meat when grown up, you are in the habit of giving but little of it to your children during their first years of life—sometimes, perhaps, not even enough, if I may judge by what our French mothers call bringing up children “à l’Anglaise.”

Among the predisposing forms of enteritis is one whose frequency has increased, during the last years, in childhood and in adults; it is muco-membranous enteritis. I insist upon it, for some persons have found a certain antagonism between that illness and appendicitis; but I think their view is precisely the opposite to the reality.

This point presents a double interest: (1) for the diagnosis; (2) for the treatment.

It is important from the point of view of diagnosis, for I have seen children die, and others almost dead, from repeated and unrecognised attacks of appendicitis, because appendicitis in their case was associated with evident attacks of muco-membranous enteritis; and those children's physicians, although learned and most distinguished doctors, have sorrowfully learnt how wrong was the mischievous doctrine of antagonism.

It is quite as important for the treatment, for it often happens that we are obliged to submit our patients to medical and dietetic treatment for enteritis after their appendices have been removed. I know well that in every case of muco-membranous entero-colitis there exists an important nervous element. Some of them are positively reflex and disappear with surprising rapidity after the surgical cure of abdominal disease—renal, utero-ovarian, etc. This may happen after the excision of a chronically irritated appendix; chiefly we have often observed to disappear, after its removal, old and intense constipation, due to intestinal atony, from which many patients suffer before the operation. We do not obtain the same results in muco-membranous diarrhoea, and I am compelled to record the cases of patients who suffered from more or less serious relapses after the operation for appendicitis.

By clinical observation it is not always possible to determine with what certainty an operation would cure intestinal disorders; but if any time before the operation these symptoms are intense and prolonged, it will be prudent after the surgical procedure to recommend for some months a careful medical treatment.

I said that, when enteritis exists, appendicitis takes some time to develop; and I add that most often this process is a chronic one. Formerly we did not think so; for, struck by the acuteness of the attack, we have not always inquired into the antecedents of our patients for the indications of a former and chronic lesion; but we were not long before realising that those symptoms existed, and almost all of us now regard appendicitis as a chronic alteration, aggravated by acute episodes. This notion has become common nowadays, but it was less so seven years ago, when I drew attention to it in a monograph on appendicitis. If one is to study

successfully all that concerns the diagnosis and the treatment, it is important to separate carefully the two states I have just mentioned, chronic and acute appendicitis.

In order to explain things more clearly, it is now classical to establish a comparison between appendicitis and inflammation of the throat; for we know that the initial lesion of the appendix, which has an exceedingly well developed lymphatic tissue, is a chronic folliculitis, comparable to that of enlarged tonsils and adenoid growths; we know also that acute inflammation of the appendix varies from a simple hæmorrhagic spot of folliculitis to the gravest gangrenous lymphangitis, states which may be compared with more or less violent attacks of acute tonsillitis or adenoiditis. And, going farther in the comparison, I am one of those who assert that if, in cases of this kind, the appropriate treatment is surgical, in acute attacks it is prudent, although for other reasons, to let the inflammatory mischief subside before using the knife.

My first care will be now to explain by what symptoms chronic appendicitis reveals itself to us, and what are its diagnostic signs.

It not infrequently happens that during post-mortem examinations, or during various laparotomies, we find evident lesions of the appendix on patients who had never been suspected of appendicitis. But perhaps these cases, whose local symptomatology is really *nil*, would not be so wanting in symptoms as they appear to be if we attributed their dyspeptic attacks to their true cause—that is to say, to chronic appendicitis.

In its common form appendix dyspepsia is marked firstly by gastrointestinal atony, the abdomen being frequently flatulent, by difficulty in digestion, by eructations and often by obstinate constipation, interrupted sometimes by diarrhœal discharges, which may be caused by a particular kind of food, especially by butcher's meat, fats, and indigestible articles of diet. I have known some patients of mine who could not bear even milk and eggs, and whom I was obliged to feed with vegetables only.

These patients have, as a rule, a coated tongue, offensive breath, and even a subicteric, greyish complexion, a capricious appetite, and habitual nausea. It is not rare for them to suffer also from gastralgia or stomach-ache, coming on without known cause, and in very variable frequency, intensity, and duration. The patient feels a sudden but keen though not well localised abdominal pain, associated with an unexpected pallor and even a fainting sensation. It is easily understood, then, that in certain serious but exceptional cases the growth of children may be stopped by such digestive disorders, and a real

cachexy be established. Certain cases who have attended their doctors during years for an obstinate dyspepsia, even for supposed intestinal and peritoneal tuberculosis, or, in adults, for supposed intestinal or stomachic carcinoma, were really suffering from chronic appendicitis.

However latent the local symptomatology of appendicitis may be, it is a rule that a weight, an indefinite pain, or at least an uneasiness draws attention to the right iliac fossa, and we feel by careful palpation, under a normally depressible abdominal wall, the cæcum a little thickened, and without flexibility, distended with gas and gurgling, and sometimes also a small tumour rolls under the fingers, due either to the appendix itself or to enlarged lymphatic glands, although nothing enables us to determine this point with certainty.

By deep palpation, specially on McBurney's point, a slight pain is awakened, which one is made aware of either by the patient's testimony or by a small defensive contracture of the muscles of the abdominal wall. These local signs suggest to us the ileo-cæcal origin of the abdominal disturbance; they exclude, for instance, the idea of nephritic or hepatic colic, but they may lead to error, for they may be the signs of a commencing tuberculous disease of the cæcum and not of appendicitis. We must bear in mind this rare tuberculous lesion, puzzling as to its diagnosis, because it may commence with an acute attack, and even by an iliac abscess. Once I was thus mistaken, when I thought to operate on a simple appendicitis after subsidence of the acute attack; on a second occasion I saw another surgeon's patient, for whom he had opened an acute abscess which remained fistulous. I must admit that I cannot give precise directions for its diagnosis—at least, in those cases where nothing else of a tuberculous nature exists either in the abdomen or elsewhere, even when cæcal infiltration is advanced.

Until now I have spoken of a symptomatology which is always obscure. There are more marked cases manifested by special and paroxysmal phenomena, amongst which vomiting in a variety of forms seems to hold the first rank.

We may observe, firstly, children who have in the morning only frequent gastric vomiting, rarely bilious, and without any fever. In certain cases the vomiting becomes habitual, and to such an extent as to be a grave hindrance to feeding. I remember some children relatively young—between three and five years of age—who, after an attack whose acuteness and form was very variable, remained unable to bear any other food than vegetable broth.

Sometimes there are very different symptoms, which occasion real difficulties of diagnosis. I remember a girl who suffered from obstinate constipation, headache, and retraction of her abdomen "en bateau," so that one of my colleagues diagnosed tubercular meningitis. Another patient, a boy, on the other hand, was constipated, with pronounced meteorism, and another patient had a very acute intestinal obstruction, with complete stoppage of gas and faecal vomiting, without fever. However, the last had only a paralytic reflex obstruction, and two hours after the opiates employed provoked the emission of gas and the end of every symptom. These patients recovered after removal of the appendix.

In the main, these cases constitute a series of examples where the symptoms of dyspepsia with gastro-intestinal flatulence are exaggerated, either continually or by sudden attacks. The study of the temperature and the pulse prove that infectious phenomena are nearly *nil*. In fact, when we operate we find sometimes some old peritoneal adhesions; most often we find none, and the appearances are those of simple chronic appendicitis. One can only see on the mucous membrane the hæmorrhagic staining of one or two points of folliculitis.

In another series the infectious element becomes more important, and a very frequent clinical form is the one where, although the initial dyspepsia may be very light, or even absent, there suddenly breaks out every sign of an "embarras gastrique fébrile"; sometimes after too plentiful a meal, sometimes without any appreciable cause, the child has indigestion, with vomiting, and very quickly the fever runs up to 39° or 40° C. The tongue becomes coated, the breath has a sour smell. At the same time there is abdominal pain, which is localised either around the navel or in the right iliac fossa, and in palpating this latter region you find some pain at McBurney's point, a slight muscular resistance, but no trace of phlegmonous infiltration.

These last objective signs allow us to establish a precise diagnosis if one is called at the very moment of this slight attack, and thus we have learnt the great clinical value of "embarras gastriques" irregularly repeated in the previous history of patients suspected or duly convicted of chronic appendicitis. Beware of those frequent indigestions, which mothers treat with a dose of medicine, when with the sickness are associated sudden fever, and colic principally on the right side.

These attacks, even when not attended to, do not last more than one or two days. But in some cases they grow worse and more frequent, so as to present the classical appearances of the

periodical acetone-mic vomitings of childhood. I have pointed out facts of that sort and spoken of children attended during several years for such a disease by eminent doctors, and cured only by the removal of their chronically inflamed appendices, and I said that for a patient of that kind it was very important to pay serious attention to the spontaneous pain, or to the one excited by pressure over the right iliac fossa. I said also that for those patients it was necessary to search for the physical signs of chronic appendicitis, such as I have just described them. We shall acquire, in thus doing, the elements of a sure diagnosis which is sometimes neglected. But I have not said or thought anything more on this aspect of the case, and I have been very surprised to read in some recent papers on the matter that I always considered periodical acetone-mic vomitings as a form of appendicitis.

When these patients are operated upon, it will be found that appendix or periappendix inflammations are, in the average, more intense than in those of the first series, which have only dyspepsia with apyrexia or little pyrexia. And here, with the ordinary folliculitis associated with an old sclerosis, we find sometimes omental adhesions; but one may say that, with some exceptions, these changes are not worthy of immediate surgical interference, however alarming may be the symptoms. The impression produced in these cases, however paradoxical the assertion may sound, is that of an acute attack associated with chronic pathological changes, and certainly in these cases post-mortem examination will never cause the surgeon to repent of not having operated rapidly enough to anticipate the infection. Besides, if we examine thoroughly these patients' pulse, temperature, functional indications of general or peritoneal infection; if we ascertain, at the same time, the depressibility of the ileo-caecal region under palpation, we do not find in these signs cause for an immediate operation.

However, I shall not assert that the surgeon is never to interfere in these cases. Rather, on the other hand, I think that it is to the surgeon only that these patients should go, and it is convenient to here state the opinion I shall soon fight for in another sense—"that there is no medical treatment of appendicitis." I admit that patients who suffer from chronic appendicitis and enjoy uninterrupted rest and a most exclusively vegetable diet may, if not cured, have no acute crisis, nothing save some insignificant uneasiness.

But if that rest can be obtained for grown-up patients, exception being made for the working class, it is impossible to obtain it for children, especially in the case of boys, in whom severe exercise,

fatigue, a visit to the "tuck-shop"—and often some unknown cause—may readily incite grave attacks by which life is suddenly threatened from peritoneal or even general infection. And then is to be considered the grave question: Must the surgeon operate during the acute crisis?

In order to take, I don't say an absolute and final, but a reasonable step, we must first consider the dangers we have to deal with.

When an acute attack occurs in an appendix, chronically irritated or not beforehand, the initial lesion seems to be the same as I have described previously—that is to say, a more or less intense, more or less limited, folliculitis. But from it may result a real lymphangitis, grave and diffuse, simple or gangrenous, perforating or not. Then intervene in the highest degree the phenomena which had remained at the second stage in the preceding forms—general infection, peritonitis.

General infection seems to be conveyed especially through the veins. The origin of some cases of pyæmia with predominant hepatic abscesses is without doubt a pyelephlebitis starting from the vermiform appendix. In other cases there is a true septicæmia without any suppuration of the liver, which, however, undergoes an extraordinarily rapid fatty degeneration; and it must be noticed that, if the appendix is generally found gangrenous in these conditions, that alteration is not indispensable. Lesions are found which are sometimes so insignificant that after operation we have some reason to think that in reality we are dealing with a septicæmia originally intestinal, where the appendix is certainly infected to a certain degree, but is involved only for a part, and even then for a very small part.

These forms, which are not very well known to us yet, are anatomically and clinically very different from those in which complications special to appendicitis depend upon the particular anatomical connections between the appendix and peritoneum. These two principal forms are to be considered according as the peritoneal inflammation is or is not circumscribed by adhesions, for the diffuse peritonitis, more or less septic, and the encysted peritonitis, ending by a localised abscess, are evidently of very different prognosis.

The gravity of these general or local infecting conditions is extremely variable. They stand between the slight attack with very sudden, and transient, high fever, and those in which death occurs in two or three days. And it is easy to understand that these catastrophes haunt our memory; the more because, we must avow it, the beginning of the illness does not always allow us to diagnose with precision what will be its ulterior evolution.

Hence arose the tempting, because simple opinion, that the surgeon must always operate in acute appendicitis as soon as he is called to give his advice. Twelve years ago it was the opinion of almost all surgeons. I don't deny to have shared it, and I am convinced that in acting as we did at the beginning of our practice, we saved numberless lives. It was at a time when our surgical activity was checked by numerous physicians, staunch defenders of medical therapeutics. When we analysed the results, the average of various operators' statistics, we had a mortality of about 25 per cent., and in spite of some medical statistics published at the time, I am persuaded that our success was infinitely superior to that of our opponents. As they have become less and less numerous, it is useless to refute them now.

However, their assertions were partly true sometimes. Very often, after refusing our counsel for immediate operation, they obtained the resolution of what was formerly called perityphlitis and which is now named appendicitis; and, on our part, we became aware that, for patients who had their attack calmed by medical treatment, the operation made in the interval of attacks, "*à froid*," as we say in France, was very much better. It allows us to remove with ease the appendix, which is not always possible amongst the adhesions of an encysted peritoneal abscess. It almost always enables us to obtain primary union after careful suture, and so we avoid the hernia which is so frequent after the incision of an abscess. And it not only saves the patients from these two causes of a second operation, more or less delayed, but further reduces the mortality to 10 per cent. instead of 25 per cent. in the hands of the same surgeons. We set aside, of course, the operation for chronic appendicitis in which the mortality is almost *nil*. I am speaking now specially of the acute cases that are brought to the hospital, including those we see for the first time when they are already suffering from diffuse peritonitis and almost hopeless. I insist on that point, because there is an important difference between private and hospital practice. In the acute attacks, with localised suppuration, we are liable to inoculate with the pus the adjacent peritoneum not protected by adhesions. Then follows a fatal peritonitis, and now we know that a too early operation was the cause of this diffusion.

So a general understanding was arrived at, or nearly so, between the fellows of our Parisian Surgical Society, and the debate which took place in 1903 proved that almost all our colleagues, renouncing the rule they had adopted in 1899, had given up the practice of always operating immediately. They think now, and it has been my

opinion since 1896, that the rule must be : operate immediately if you are called within the first twenty-four hours following the outburst of the acute attack ; but when you are called afterwards, you must act according to the indications given by each individual case, and then with the idea of calming as much as possible the attack before operating.

It is certain that the early operations, in the first twenty-four hours, before perforation or gangrene, before adhesions and supuration, can be performed in anatomical conditions almost identical with those of the operation "*à froid*," and nearly all the objections previously mentioned are then of no account. But, in order to act in this way, we must possess an absolutely certain diagnosis ; and in children this is difficult to obtain, in association with certain clinical features understood by all children's doctors and surgeons, and this is the reason why they came to a general agreement about that subject.

The causes of error exist both for peritoneal and septic forms. Suppose a child presents the symptoms of an acute peritonitis, it is often more difficult to decide quickly in him than in an adult whether the appendix is attacked. The tubo-ovarian inflammation conduces to error, without doubt, in women, but less than pneumococcic and gonococcic peritonitis in childhood ; and we must remark that in a great majority of cases the pneumococcic form attacks girls, and that the gonococcic cases are exclusively confined to them. Diagnosis is generally easy when pain in the right iliac fossa is definite, localised, and acute, spontaneous or excited by pressure, and when in a few hours phlegmonous swelling with muscular defence of the abdominal wall is evident. But we must take care and be cautious when children say their abdominal pain is round the navel, and when the swelling is relatively slow in forming. Besides that, pain limited to pressure with muscular defence may also exist in other forms of peritonitis which I mentioned, for pneumococcic peritonitis is usually more or less encysted around the initial point, and the gonococcic starts from a tube, without, however, any tubo-ovarian tumour which could be found by rectal investigation, such as occurs in women.

In gonococcic peritonitis the appearance soon becomes very grave, with a very small and very weak and frequent pulse, with cyanosis of the face, and those obvious local symptoms which will attract your attention if the girl be suffering from vulvo-vaginitis. But at the commencement, save in the rather uncommon case of a previous pleuro-pneumonia, the nature of pneumococcic peritonitis escapes us

entirely up to the moment when pus is collected in the abdomen. As a rule, immediate diagnosis is impossible. On the other hand, it is certain that the opening of the peritoneum aggravates in a disastrous way the virulence of the gonococcic infection; it aggravates just as much the pneumococcic one in an early stage, before the formation of pus. The first of these two forms of peritonitis will never become surgical; the second one will, but not in the initial stage. In fact, in both forms one may meet with serious complications if one tries the method of exploring laparotomy. On the other hand, laparotomy does not cause any injury in the beginning of tubercular peritonitis simulating the beginning of appendicitis.

Another difficulty arises in children when symptoms closely resembling those of appendicitis, without iliac swelling, but accompanied with sudden fever and vomiting, are due to intestinal helminthiasis. In some of them the symptoms cease after one or two days by the spontaneous evacuation of the ascarides. As early as 1893 I had one of these cases which was published by my pupil Jacob in his inaugural dissertation. These cases have been used to establish the theory of appendicitis provoked by intestinal worms; I believe that is a false one, but such facts must put us on our guard against operating when we are not able to make with precision an immediate diagnosis.

Certain septic conditions, without any peritoneal symptomatology, but with pain at McBurney's point, also give rise to mistakes. For instance, I see occasionally children who are supposed to be attacked with appendicitis, and who are suffering in reality from pneumonia with an abdominal stitch. This condition is easily diagnosed if the classic stethoscopical signs exist at the same time. But the perplexity is great in the case of a central pneumonia, where the signs become manifest only after two or three days. These cases are not rare enough in children to give us a right to neglect them. Similar conditions are met with in association with pleurisy.

Lastly one must bear in mind, still more, I believe, in children than in adults, the possibility of typhoid fever beginning suddenly, with vomiting, iliac pains and even enlargement of the cæcum and its lymphatic glands. I observed two cases, particularly obscure, where typhoid fever began in this way, though I knew that they were undoubtedly suffering from a previous chronic appendicitis.

My personal opinion, and that of all my Parisian colleagues, children's physicians, and surgeons, is that these unavoidable difficulties in diagnosis do not permit us to adopt the rule (excellent in cases where the diagnosis is certain) of operating in every case within the first twenty-four hours. Again, we are ordinarily not called so

soon; in small and slight attacks, which are by far the more common, mothers are accustomed to treat them as an indigestion, and when the doctor is summoned some time has been already lost, and still more is wasted before the surgeon arrives.

The opinion which begins to prevail is the following: that when, for one of the reasons stated, we have decided to wait, we must continue to do so, whilst studying from the moment we are summoned the clinical indications for an immediate, early, or postponed operation, in each particular case.

I think it useless to insist upon the clinical phenomena which require, in diffuse peritoneal forms, immediate surgical interference. Disassociation between pulse and temperature, green vomiting, anuria, dryness of the tongue, alteration of the facial expression, suppression of gas through the anus, are all signs of diffused peritonitis, or of peritonitis near being diffused. We must exclude, however, patients brought to the hospital who present these symptoms after a wearying journey, and who appear much better after some hours' rest.

In these forms of diffuse peritonitis some surgeons, thinking the condition of the patient hopeless, decline to operate and allow him to die. I believe they are wrong, for now and then some patients judged hopeless have been cured by laparotomy. One might argue, perhaps, that peritonitis was not in such cases truly generalised. But the clinical fact remains that when the symptoms of generalised peritonitis exist surgical cure is possible, though exceptional. We must then operate, without regard to keeping up brilliant statistics.

As to encysted peritoneal forms, they must be operated on immediately only if an abscess has collected; in that case immediate operation is followed by remarkable success, and we must not delay it if after the third or fourth day the fever persists and runs high, and if swelling is discovered in the iliac fossa or in the rectum.

Further, without agreeing with the few who advise waiting for fluctuation, we must understand one another about such cases. When in operating we find pus, we must not conclude that the operation could not have been postponed until the day after, as has been said by many observers. For instance, very often in operating a long time after the calmed attack we discover around an appendix sometimes calculous or even perforated remains of an abscess and caseous matter between the adhesions; surely in these cases there has existed pus which has been absorbed.

That being so, I have not been very surprised that, in spite of the scientific precision of a laboratory's investigation, the study of leucocytosis of the blood has led several observers to contradictory

conclusions. We have in this one more indication of value ; but we have not in it the positive criterion desired by some surgeons, and we must be satisfied to place its diagnostic indications along with the whole of the physical and functional phenomena of which I am going to speak, in studying the cases in which we attempt to calm the attack. In doubtful cases it is unnecessary to say that we must operate more quickly, but we must inquire carefully how the medical treatment has been applied during the preceding days. In fact, we are sometimes astonished how rapidly this treatment, when well managed, acts on patients aggravated by the use of purgatives and by inappropriate feeding.

I consider it useless to give here particulars of what is meant by "medical treatment" in the acute attack. It may be recapitulated in few words: complete deprivation of food, only a few spoonfuls of pure water, and large bags of ice on the abdomen. In former times I always prescribed opium ; now I give it only when specially required, when colic is very painful and not explained by an increase of the iliac swelling. I must draw specially your attention to purgatives being dangerous and remark that patients who drink milk or broth do not keep strict diet.

Patients thus treated must be carefully watched so that they may be operated upon, not only when the slightest appearance of peritonitis is noticed, but also if the fever does not yield quickly and if the local swelling progresses.

From all this it results that we should delay less when there is pelvic localisation of the swelling, a form difficult to watch, and of which the diagnosis is made by paying attention to some special clinical facts, such as vesical pain in passing water, and above all by searching systematically *per rectum* with the finger. We must also remember that we are not to act in the same manner with patients who live in town as with those who live in the country : these latter require to be operated on almost always immediately.

According to all these preceding facts, there is no absolutely established rule. But an accomplished clinical man will but rarely allow himself to be surprised by the development of peritonitis during an attack of appendicitis with local swelling, in which he watches an abscess in formation. Disappointments will be less frequent than from diffuse peritonitis following an operation undertaken too late or from one performed too soon, after the beginning of a peri-appendicular abscess, and before the protecting adhesions have formed between the deeply seated pus and the anterior abdominal wall.

The real difficulties of diagnosis and the painful surprises for sur-

geons are not due to these encysted peritoneal forms, but to certain gangrenous appendices in which diffuse peritonitis, with green or even black vomiting (without doubt the final phenomena) occur, but in which, until that sudden and final outburst, peritoneal symptoms remain unheeded. The patient is dangerously infected, highly feverish, pale-faced, sometimes looking subicteric, with cyanotic lips, but in the abdomen we do not find clear signs. The initial iliac pain draws attention to the appendix, but I have not found it from the beginning specially intense. In handling the abdomen, we cannot detect any swelling and we cause often little pain; even the abdominal wall can be sometimes easily depressed on all parts when the appendix is in its normal place, and when it is hidden far away from our fingers, in such a region as the top of the pelvis or in the sacral fossa, the absence of physical signs is what one might expect. During the operation we learn why no swelling was felt, as then we find around the gangrenous appendix very little pus and but very few soft adhesions.

Every one of us has cured some of these last patients by operating upon them immediately after the diagnosis was made. But all of us also have, with some others, overlooked the diagnosis during a certain period. Firstly, because, these cases being of a kind in which positive local signs are missing, we remain hesitating about the appendix origin of the observed septicæmia; secondly, because, the appendix being incriminated, it is very difficult to establish an early diagnosis between the gangrenous form which requires immediate excision of the appendix, and some other very septic forms in which macroscopic alterations of the appendix are very slight, and where it seems that the shock of laparotomy and the disorders caused by anæsthesia are prejudicial in stopping, even for a short time, the hepatic and renal functions already gravely involved by the sudden septicæmia.

There are cases of grave jaundice with blood-vomitings, in which yellow atrophy of the liver seems to be the result of an appendix folliculitis, at first sight insignificant: the operation, even when made at the beginning, as soon as our attention has been aroused only by a slight subicteric shade, does not improve the progress of the disease. Now, I saw two of these cases—in grown-up patients, I must say—with jaundice, fever, and rigors, that improved little by little, so that some weeks after I removed a sclerosed appendix with traces of old folliculitis, but without any trace of peritonitis around it.

Therefore, especially in these cases, we remain doubting, and sometimes we allow death to ensue while we are waiting. But while in peritonitis diffused under these conditions we may accuse ourselves of

having lost the opportune moment, there is nothing to demonstrate that in operating earlier we should have succeeded better. Experimental as well as clinical study teaches us that the most rapid excision of an inoculated point does not stop infection if it is of a certain degree of virulence. The more so if we are aware of the inoculation only by total and general reaction in connection with it, especially when so deeply situated an organ as the appendix is concerned.

Those cases are happily very rare. The common cases are the peritoneal ones. For these, well treated, sometimes, I repeat it, an abscess will cause us to perform an immediate operation; rarely, we shall be surprised by diffuse peritonitis if the patient is carefully watched; generally we shall succeed in calming the attack. It is well, then, to remove the appendix, about a month later if the attack has been slight. When the attack has been grave, we must wait longer, according to the case.

When I began to practise, I thought with many of my colleagues that the operation was not necessary after a first slight attack. Now, on the contrary, we have all agreed about the necessity of operating after such a warning. Relapse is not a necessity, but it is frequent, and we cannot guess how intense might be a second attack.

For this reason we are right in saying that there is no medical treatment of appendicitis. When we do not operate immediately it is but to give time for the acute inflammation to subside; then the operation is less dangerous. I always said so, and I insist upon that, because some authors, whose only excuse might be their perfect ignorance of my writings, have described me as an obstinate abstentionist. You will also kindly allow me, in order to end this debate, to quote the phrase I printed in 1900: "The true question to decide is whether non-operative treatment is capable of calming an attack, when well instituted and in time, and if it is not better to try this treatment as often as possible, and to postpone the operation for a time. To that question I answer in the affirmative."

Before closing this lecture, I must indicate the technique I think the best for the operation. This account will be short because opinions agree, save for some details.

(1) Diffuse peritonitis requires firstly a long incision in the right iliac fossa, through which I think we should always try to remove the appendix. Almost always we must add to that first incision a median one, and often a third one, in the left iliac fossa. The drainage must be very free, with very large rubber tubes going

in different directions into the abdomen and the pelvis. Sometimes I use irrigations, with boiled water or physiological salt solution, but I do not use them regularly because I am not at all convinced that they improve the always lamentable prognosis of the disease.

(2) Encysted suppurating peritonitis is to be treated as a single abscess by a large opening. No rule need be given: the incision is to be made where the abscess is situated, on the right or on the left, in front or behind. There is a doubt about pelvic abscesses. Some authors teach that the best plan is to open them by rectal incision. It cannot be denied that these abscesses after abdominal incisions progress often worse than the other ones. On the other hand, they sometimes heal spontaneously by discharging through the rectum, hence came the idea to imitate that natural method of evacuation.

In spite of some successes due to that proceeding, I do not believe it ought to become general. I think it is dangerous for the abscesses situated high up, which we must search for blindly, with special trocars; and as to the abscesses low down, which can be felt by the finger near the anus, they almost always can be drained through the iliac fossa—sometimes through the left one, where the swelling and adhesions may be. It is very rare to find the appendix directed downwards and that an abscess has formed in the pelvis whilst the iliac fossa is entirely free. But when it happens then the rectal incision can be of real help. I remember, for instance, a girl whose iliac fossa I opened. I found the peritoneum here normal, but a hemispherical arch of adhesions transformed the pelvis into a large pus-containing cavity. Judging the escape of pus into the peritoneum to be dangerous, I closed the abdominal wall immediately and opened the abscess by the rectal way. The patient was rapidly cured.

After the spontaneous or surgical opening into the rectum, it is scarcely necessary to say that the appendix is not treated, and frequently it gives no more trouble; not always, however, for twice I have been obliged to remove it afterwards, on account of persistent septicæmia.

The discussion as to what is to be done with the appendix in localised abscesses has to do with abdominal incisions. Some surgeons have advised its removal always at once. They say that it is the only sure way to stop the peritoneal infection around it and, later, to prevent such accidents as fistula, relapsing attacks, etc. But, by breaking the adhesions and by inoculation of the serous cavity, this method may cause some post-operative diffuse peritonitis. In these cases I remove the appendix only when I see it easily under the adhesions, and owing to my experience of these cases

having extended, I act in this way more and more often. I tie the appendix and cut it with the "thermocantère": the cæcal wall is much too softened to bear a suture destined to bury the stump.

(3) In the delayed operations, "à froid," as we say, the *absolute* indication is to remove the appendix, and whatever may have been said, it is always possible, but not always easy. Firstly, the appendix may have in the abdomen various positions scarcely accessible when adhesions exist; secondly, because even when we can easily reach the appendix, some difficulties and dangers may arise from adhesions and from relics of old purulent matter. We must recognise the fact that a positive diagnosis of this state is often impossible. It may happen that before operating we feel in the iliac fossa the cæcum to be scarcely thickened or even painful, yet when operating we find, either behind the ascending colon and near the liver, or in the upper part of the pelvis, an adherent appendix surrounded by caseous matter.

For that reason I gave up the vertical incision known in Paris as "Jalaguier's," by which the appendix is removed through the aponeurotic sheath of the right rectus muscle. This muscular band lies afterwards opposite the sutured aponeurotic incision, and prevents the occurrence of a subsequent hernia. By this method the removal of the appendix is very easy in simple cases; but when we have to seek it deeply, and when the cavity must be drained, we expose ourselves to serious trouble. Therefore, after several attempts, and each time after cases where in operating I found unexpected difficulties, I adopted again the oblique iliac incision, named "Roux's incision." But in this the muscles are divided, and often after very good primary union a hernia is to be feared. Then I adopted finally the proceeding of McBurney, in which, after an oblique incision of the skin, the muscles are not divided, but separated along their fibres. The way to the ileo-cæcal region is very direct; and if we meet with difficulties, with lesions calling for drainage, we can cut the abdominal muscles upwards or downwards, and we have then all the advantages of "Roux's incision."

I have finished now with these questions of technique. I could expound to you a general method, but I am fearful lest I should become wearisome in detailing to you how to bury the stump or to close the abdominal wound. Moreover, I have already kept your attention too long whilst addressing you in an unaccustomed tongue. You will forgive me, I hope, for speaking in English in person owing to my desire to be more in touch with you all instead of entrusting your Secretary with the translation of my lecture and the reading of it.

TUBERCULOSIS OF THE CHOROID.*

By GEORGE CARPENTER, M.D.,

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A GOOD deal of attention has been paid lately in ophthalmic circles to tuberculous affections of the eye, and it is now becoming tacitly recognised that tubercle is a commoner cause of eye disease than was formerly thought to be the case. To judge from the evidence, it would appear that no single structure of the eyeball or of its appendages could escape tubercle, with the possible exception of the crystalline lens. The writers of this paper have collectively and individually enjoyed what may, without exaggeration, be described as a comparatively large experience of the eye disorders of childhood, and in the course of their work they have devoted considerable attention to tuberculous affections of the fundus oculi.

In the course of their researches they have been fortunate enough to meet with no less than 80 cases of tubercle of the choroid, of many of which drawings have been made.

This number has included 49 cases of *acute tubercle*, 11 cases of *chronic tubercle*, and 20 cases of *obsolescent tubercle*.

It is the purpose of the present communication to describe as briefly as possible the characteristics of these several classes.

ACUTE MILIARY TUBERCULOSIS.

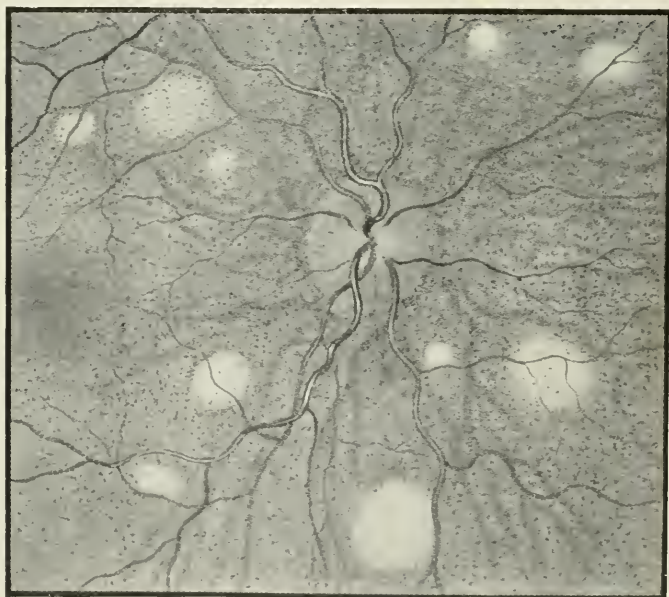
Choroidal tubercles in association with this condition are usually situated in the neighbourhood of the optic disc and yellow spot, sometimes at the yellow spot itself (*vide* illustration No. 3, p. 253).

It is rare to see them in the periphery of the fundus, although exceptionally we have found them there, and demonstrated them pathologically. They usually are limited to one eye (13 times out of 21 cases), which shows the necessity for examining both eyes in suspected cases. In the same number of cases both eyes were involved 8 times. It is quite common to find a single choroidal tubercle ; in 29 eyes it happened 17 times.

* A paper read before *La Société Française d'Ophthalmologie*, in Paris, May the 8th, 1906.



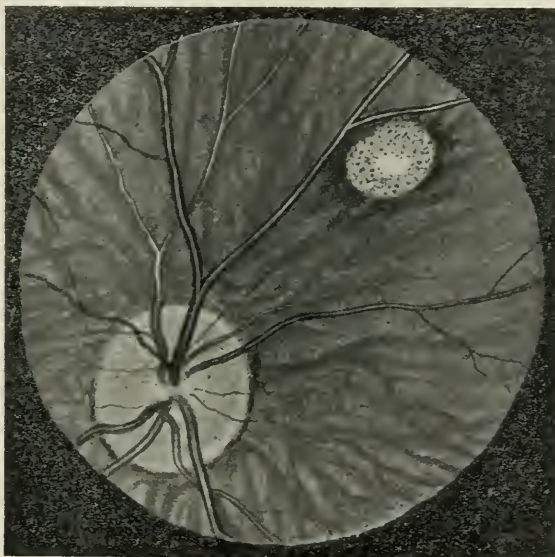
No. 4.—Left eye, erect image, Ada S—, aged 3 years. Disseminated tubercle of the choroid, confirmed pathologically. The child died from general miliary tuberculosis, August the 11th, 1903.



No. 5.—Right eye, erect image, Ada S—, aged 3 years. Disseminated tubercle of the choroid, confirmed pathologically. The child died from general miliary tuberculosis, August the 11th, 1903.

The usual number of choroidal tubercles is 2 or 3, but we have found as many as 20 in a child of 3 years, 10 in each eye (*vide* illustrations Nos. 4 and 5*, p. 250). Tubercles of the choroid are either round or oval in outline, occasionally reniform, and rarely of an irregular shape. They are either fawn-coloured or range from stone-grey to paper-white.

They are usually outlined by a narrow, darkish zone, or bloom, as though the retinal pigment had been slightly intensified at this region, and in corroboration of this view we have found corresponding alterations in the retinal pigment epithelium.



No. 16.—Minnie W—, aged 4 years. Tuberculous meningitis and tubercle of choroid. No post-mortem examination.

The surface of a choroidal tubercle is usually devoid of pigment, and suggests the idea that the retinal pigment epithelium has been gently brushed away, leaving a "moth-eaten" edge.

When the choroidal vessels are visible they are usually seen to end abruptly in these little neoplasms (*vide* illustrations No. 16; No. 24, p. 258). Only once have we seen a tubercle surrounded by a pale red ring from choroidal congestion or hæmorrhage. They

* For convenience the numbers on the illustrations as displayed in Paris have been retained. It being impossible to reproduce all the drawings exhibited there, certain of the more characteristic examples, together with those of uncommon type, have been selected from them.

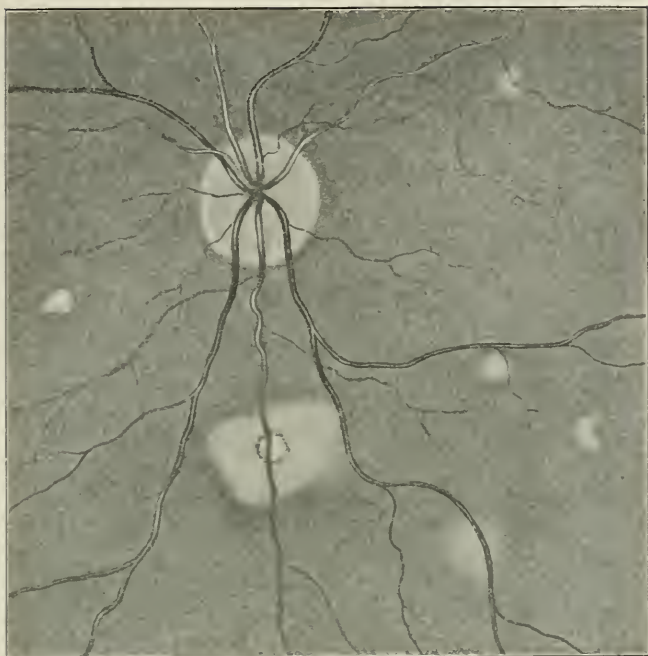
frequently occur in the neighbourhood of retinal vessels, which, as a rule, pass across them undisturbed in outline, though exceptionally these overlying vessels may appear a trifle hazy from oedema of the overlying retina (*vide* illustrations No. 9, p. 253; No. 10; No. 23, p. 257; No. 24, p. 258). Illustration No. 3, p. 253, which shows a neoplastic mass of tubercle in the central region of the fundus, exhibits also an unusual indistinctness of the vessels crossing the mass. In size they vary from the width of a primary retinal vessel to a mass several times the area of the optic disc, but it is exceptional



No. 10.—Frederick P—, aged 2 years. Family history of phthisis; child wasted, with a temperature of 103° F., enlarged spleen, and tubercles in each choroid.

for them to equal the latter in diameter, although one of our cases was eight times its size (*vide* illustration No. 3, p. 253), two slightly exceeded it (*vide* illustrations No. 10; No. 11, p. 254), and one was decidedly larger (*vide* illustration No. 12, p. 255). Their colour is mostly uniformly distributed, but once we detected central bright shimmering dots in stone-grey coloured tubercles. In one case there was a central vascular point, and in another illustration a similar vascular point in the centre of one tubercle and a red linear streak in another, evidently dilated choroidal vessels.

Pigmentation is not, as a rule, a feature of the commoner varieties



No. 9.—E. S—, aged $6\frac{1}{2}$ years. Tubercle of choroid, both eyes. No post-mortem examination could be obtained.

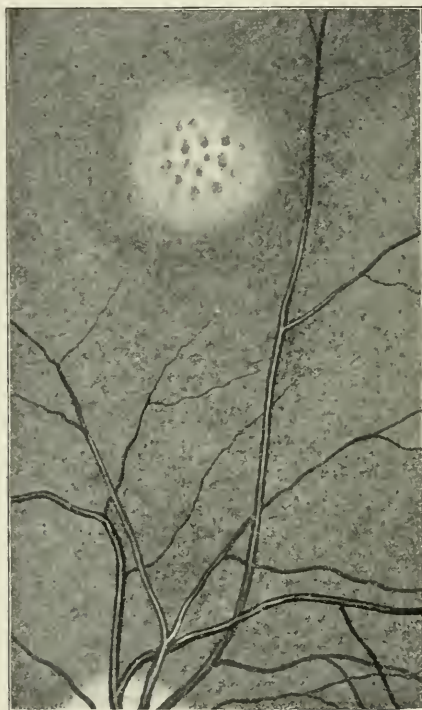


No. 3.—For history of case see text (p. 255).

of choroidal tubercle, although we have found upon them narrow black pigmented rings (*vide* illustration No. 9, p. 253), peppered-over pigmented specks (*vide* illustration No. 16, p. 251), and isolated pigment grains (*vide* illustration No. 23, p. 257).

One of our cases, a solitary tubercle, paper-white in colour, had a narrow black ring upon it, with a halo of black pigment grains dotted over a greyish area.

Irregular distribution of clumps of pigment granules, when it does



No 11.—For history of case see text.

occur, is apt to produce striking appearances in these bodies, especially if the tubercle be large and white or grey in colour (*vide* illustrations No. 11; No. 12, p. 255).

In three cases the choroidal tubercles assumed the unusual form of a small oval, granular, pigmented mass, situated near the optic disc. We have never seen choroidal tubercles bounded by a thick border of black pigment, as happens in old syphilitic lesions.

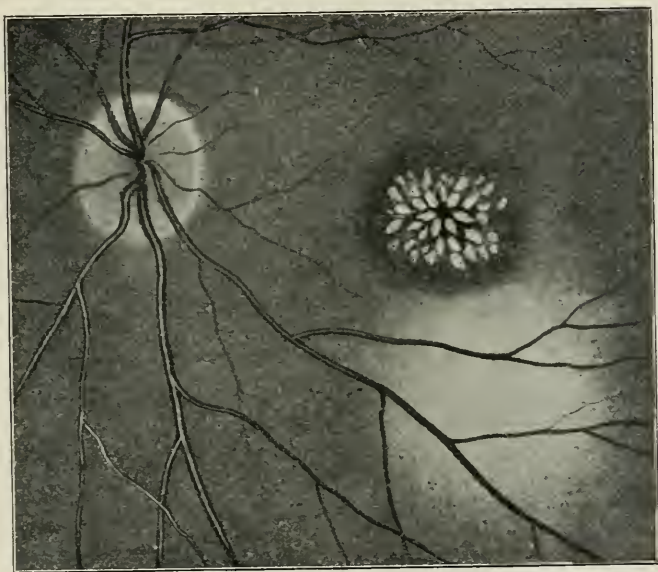
The drawings Nos. 4, 5, 9, 10, 12, 16, and 24 (p. 258) well illustrate the appearance of choroidal tubercles as they occur in associa-

tion with visceral tuberculosis and with tuberculous meningitis, or with these lesions combined.

In our experience, the majority of cases have head symptoms. Thus, of 36 cases of general tuberculosis previously published by us, all verified by autopsy except 6, no less than 26 had meningitis.

Six cases out of 42 had tuberculous meningitis alone, 4 of them being verified by post-mortem examination.

Unusual types.—Illustration No. 3 (p. 253) was taken from a child, aged 2 years and 5 months, who died of miliary tuberculosis. At the



No. 12.—For history of case see text.

yellow spot region was a quadrangular tuberculous mass of a dirty grey colour, some eight times larger than the optic disc. The overlying retina was oedematous, and the retinal vessels steamy-looking. The retinal pigment was intensified in some areas and attenuated in others, producing light zig-zag-like rifts on the surface. A large grey tubercle was found *post-mortem* at the yellow spot.

The illustration No. 11 (p. 254) was taken from a boy, aged 1 year and 2 months. The tubercle, which was of a grey colour, slightly exceeded the optic disc in size, and was provided with the usual unobtrusive pigmented margins; its surface had a pitted appearance from the isolated collections of granular-looking pigment deposited there.

Illustration No. 12 was taken from a boy, aged 1 year and 8 months,

who died of tuberculosis, together with tuberculous nodules in the right optic thalamus and rolandic area. Below the yellow spot was a large and typical tubercle larger than the optic disc. But at the yellow spot was an area about the size of the optic disc, made up of white patches and dark, granular-looking pigment. The white areas were petal-like, and arranged in a floral device with intervening dark pigment.

Optic neuritis of a mild type often accompanies the condition; thus of 42 cases published by us, 16 developed optic papillitis. It is sometimes localised to a small section of the disc, and may be confined to one eye.

CHRONIC TUBERCULOSIS, MEDICAL AND SURGICAL.

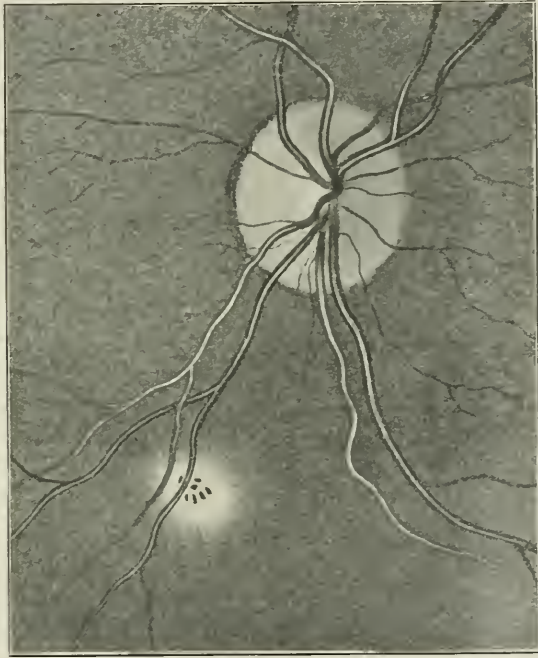
It is not generally recognised that tuberculosis of the choroid may occur in cases of chronic medical or surgical tuberculosis, such as phthisis, tuberculous adenitis, spinal caries, tuberculous arthritis, etc. Examination of 119 cases of chronic tuberculosis in children, whose ages ranged from eight months to sixteen years, brought to light no less than 11 with choroidal changes, or 9·24 per cent.; 3 of these were verified *post-mortem*.

In cases of chronic tuberculosis terminating clinically by acute tuberculosis or by tuberculous meningitis it is not possible to determine by the ophthalmoscopic appearances when the case comes under observation whether the choroidal tuberculosis started with the chronic lesion or originated with the acute tuberculous dissemination.

The opportunity has only once happened to us to be able to observe for any length of time the behaviour of a verified fawn-coloured choroidal tubercle in association with a chronic surgical tuberculous lesion (spinal caries). Exactly a year afterwards the child died of acute miliary tuberculosis. While under observation the choroidal tubercle grew a trifle and the pigmented ring upon it became broken up into a few scattered black specks. In appearance it was identical with those found associated with acute miliary tuberculosis. We have proved *post-mortem* that choroidal tuberculosis accompanies localised tuberculous lesions. Illustration No. 23 (p. 257) displays a solitary paper-white coloured tubercle near the optic disc with unusual pigment distribution on its surface in the shape of seven isolated grains of black pigment. The patient, a girl aged 3 years, had tuberculous joints, one hip and one knee, one of which had been excised, and *post-mortem* was found to have old tuberculous mis-

chief at the apex of the right lung. Illustration No. 24 (p. 258) shows a solitary and typical pale choroidal tubercle together with optic atrophy taken from a hemiplegic boy, aged 4 years, who was found to have a tuberculous tumour involving the upper two left frontal convolutions and pressing on the ascending frontal convolution.

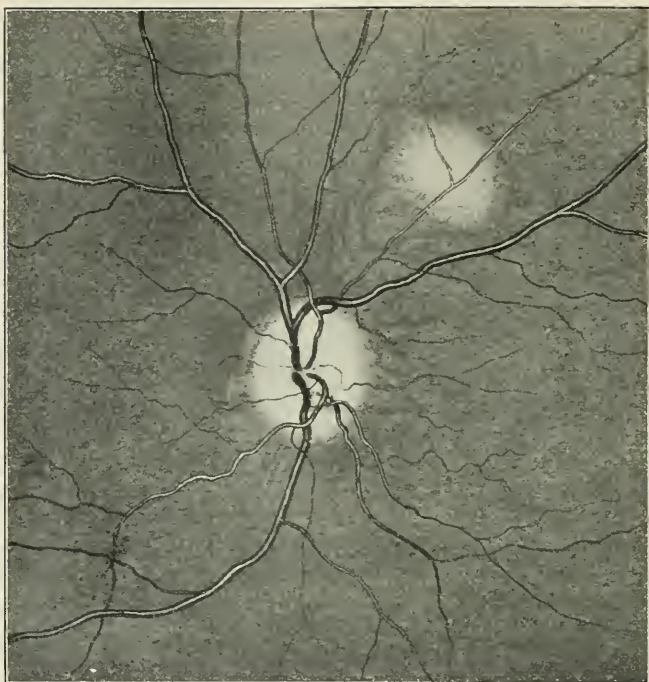
The cases just related differ in no way from those met with in acute tuberculosis. But there are two other varieties found in chronic tuberculosis, viz. the *disseminated* and *diffused*.



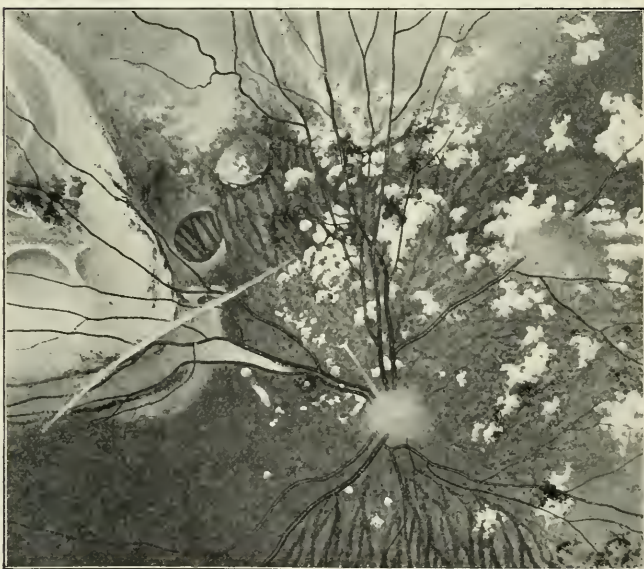
No. 23.—For history of case see text.

As an illustration of *disseminated tuberculous choroiditis* we give the following. The patient, a lad aged 12 years, suffered from extensive scrofuloderma and enlarged cervical glands. There were no stigmata of syphilis. Both eyes resembled *choroiditis disseminata syphilitica*.

Illustration No. 25 (p. 258) is an example of *diffuse choroiditis* which was taken from a boy aged 6 years and 7 months. The large areas of detached retina were probably caused by a gross mass of tubercle in the choroid. The glistening white smaller patches resembling albuminuric retinitis possibly represented tubercle of the deeper



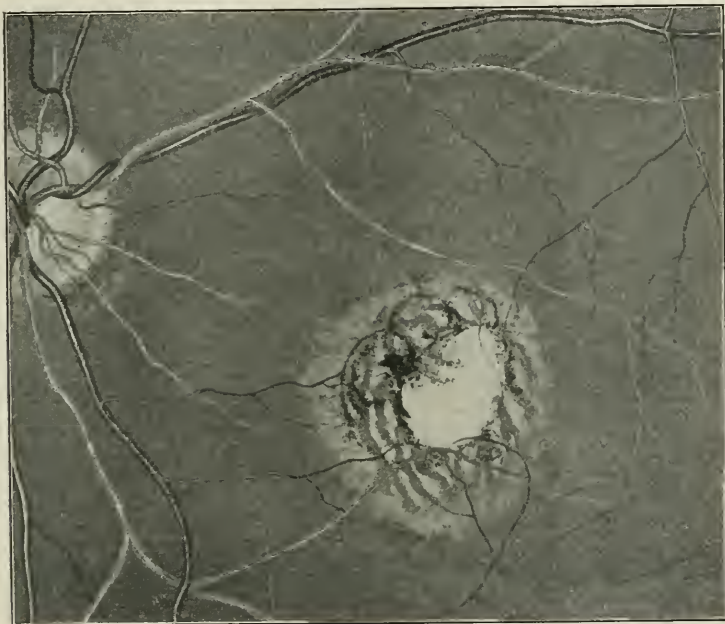
No. 24.—For history of case see text.



No. 25.—For history of case see text.

layers of the retina. The eye had been blind for eighteen months. He had tuberculous disease of the right knee of eight months' standing, and slight chronic enlargement of the cervical glands. There was no history of syphilis, nor was there a family history of phthisis, but a lodger with phthisis had lived in the house before the onset of the eye trouble.

A further example is that of a youth, aged 16 years, who had phthisis of one apex and a family history of phthisis on the mother's side.



No. 29.—For history of case see text (p. 262). Owing to photographic difficulties experienced in reproducing the above from the coloured plate the arteries have come out too white.

His right eye was blind and painful, the cornea diffusely hazy. The tension of the globe was raised, and no reflex could be obtained from the fundus. The eye was excised and the vitreous was filled with a greyish, solid exudation of caseous material. Tubercle bacilli were not looked for.

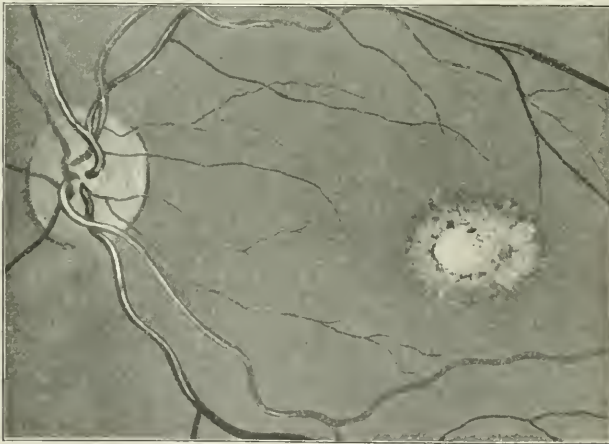
OBSOLESCENT TUBERCLE.

In the absence of a pathological examination, it is impossible to assert that the illustrations we now give are of a tuberculous nature, but there is something more than a reasonable possibility that the cases we have selected are tuberculous and not syphilitic.

One water-colour drawing, which showed a paper-white patch in

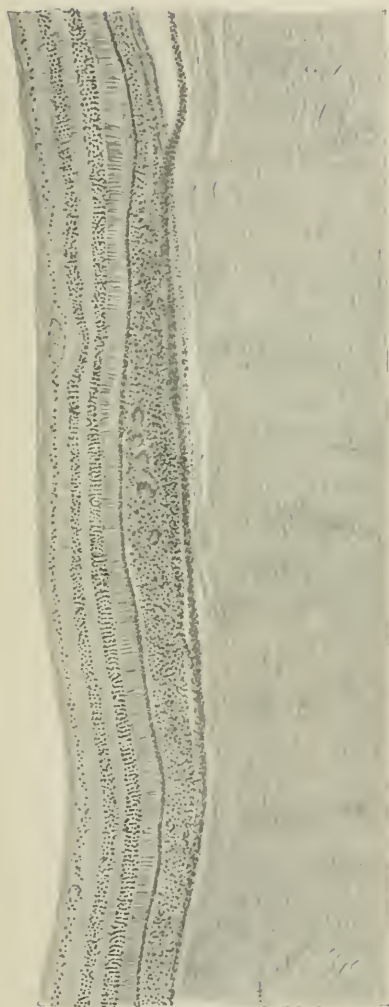


No. 30.—For history of case see text (p. 262).

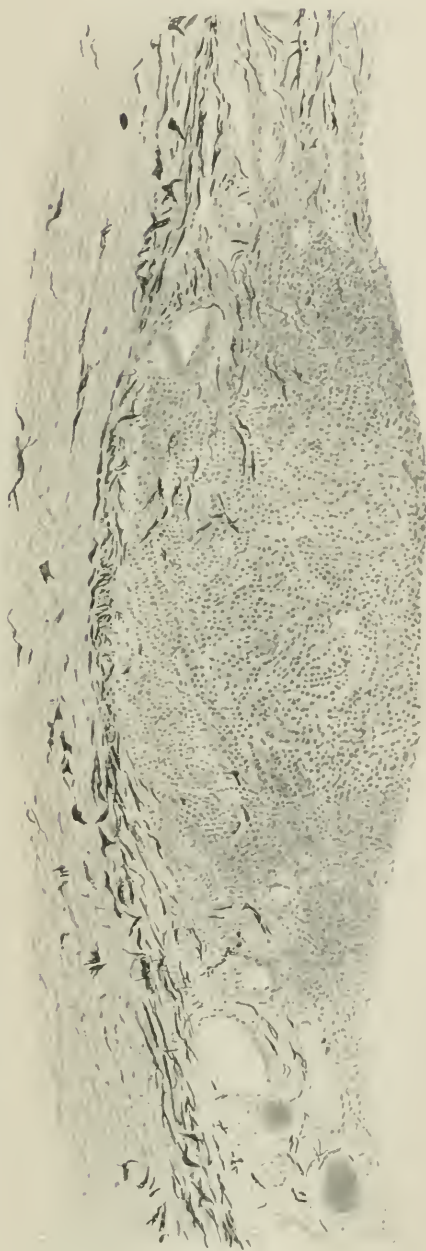


No. 31.—For history of case see text (p. 263).

the choroid, with a narrow, black, pigmented margin, and situated near the optic disc, was taken from a hemiplegic child, aged 8 years.



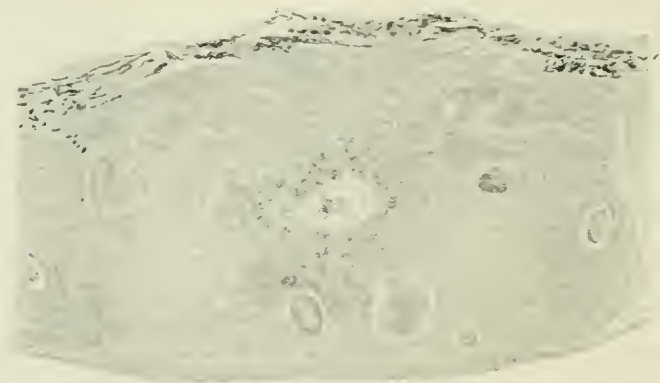
No. 5b.—Microscopic section of a typical choroidal tubercle and infiltration of the choroid with small round cells—diffuse tuberculous choroiditis, taken from Ada S—(*vide* illustrations of fundus oculi, p. 250). $\times 50$.



No. 18a.—Histological appearances in tubercle of choroid from case of Ada P., aged 5 years.

When two and a half years old she had convulsions, followed by hemiplegia. Her father died of phthisis. There were no stigmata of syphilis. Somewhat like it in appearance was another illustration, which displayed a round, white area in the choroid, just below the optic disc, in part bounded by a thin, black, pigmented ring. This was drawn from a child, aged 8 years, who had phthisis of the left apex and no evidence of syphilis.

Another water-colour drawing was taken from a woman, aged 51 years, who had a strong family history of phthisis, and had been treated thirty years before for that affection. She had signs of old quiescent tubercle at one apex. Lying near the inner side of the left disc was a circular area half as large again as the optic papilla. It showed



No. 6A.—Jane R—, aged 3 years. Microscopical appearances of tubercle in the choroid, showing many tubercle bacilli.

exposed choroidal vessels, and was bordered by pigment. A number of tiny fawn-coloured dots, all, with one exception, devoid of pigment, were scattered over the fundus near the lesions and the disc, and doubtless represented satellite tubercles.

Illustration No. 29 (p. 259) was taken from a boy, aged $7\frac{1}{2}$ years, with a strong family history of phthisis, and who had formerly suffered from tuberculous adenitis. Just below the yellow spot region was a lesion twice the size of the optic disc, composed of a central grey area bounded by an intermediate zone consisting of pigment and exposed choroidal vessels and a peripheral zone of lighter hue than the red reflex.

Illustration No. 30 (p. 260) was taken from a girl, aged 23 years. There was a strong family history of phthisis, together with a thickening around the ascending colon, probably the relics of an attack of

tuberculous peritonitis five years before she came under our observation. At the yellow spot was a large, bluntly triangular patch, fully three times the size of the optic papilla, consisting of a central area of paper whiteness and a larger peripheral zone of exposed choroidal vessels. The pigmentary disturbance was but slight, and mostly in the periphery of the body.

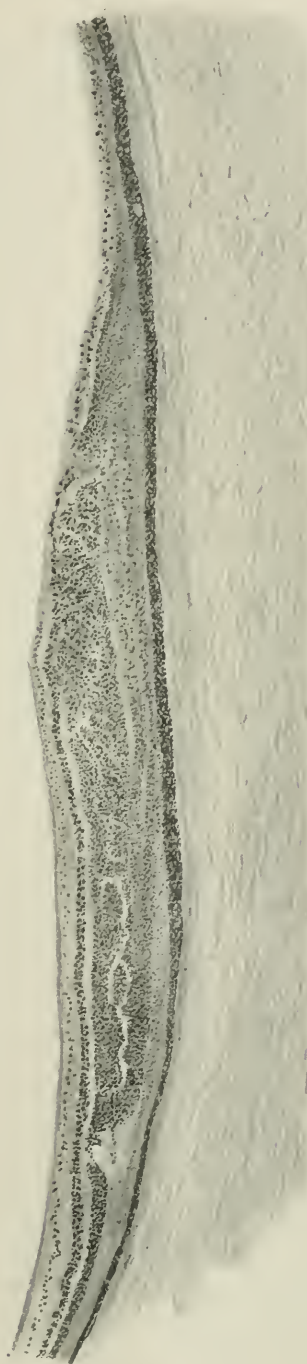
Another illustration, drawn from a child, aged 4 years, of "strumous" appearance, with swollen glands and a pustular eruption about the head and face, showed an egg-shaped patch in the central region of the fundus. Its long axis was horizontal, its colour greyish-white, and its surface was slightly depressed below the level of the surrounding parts. Its border was outlined by pigment, some of which invaded the patch itself. It was surrounded by a "moth-eaten" area of pallid choroid. Illustration No. 31 (p. 260), taken from a "strumous" boy, aged 4 years, shows very similar ophthalmoscopic appearances.

We have altogether notes of 20 such cases, but have seen the condition much more frequently than that. The essential characteristics of obsolescent tubercles in the choroid appear to us to be:

(1) Their central position in the fundus oculi.

(2) Their large size, and presence in one eye alone.

(3) Their characteristics, *viz.*, a central atrophic area enclosed by a pigmented figure and often surrounded by a zone of altered choroid.



No. 5A.—Microscopic section of a retinal tubercle taken from Ada S.—(vide illustrations of fundus oculi, p. 250). × 50.

(4) The fact that they are sometimes associated with tiny atrophic spots in their vicinity, doubtless representing their former satellites.

Pathology.—The pathology of tubercle of the choroid does not differ materially from that of tuberculosis in general. In typical cases, such as 5 *b* and 18 *b* (p. 261), the choroid is found to be locally thickened by an infiltration of small round cells and to contain giant cells of the Langhans' type in greater or smaller numbers. Epithelioid cells, as a rule, are to be distinguished with difficulty or not at all. Areas of caseation are common in the tuberculous nodule, as evidenced by the difficulty in staining. The search for tubercle bacilli is often fruitless, possibly because the specimens are so frequently hardened in formol; but in one of our drawings, viz. 6 *a* (p. 262), these organisms may be seen in considerable numbers. No. 5 *a* (p. 263) represents a somewhat unusual specimen of retinal tubercle.

DISCUSSION.

M. VALUDE: Les admirables dessins de MM. Carpenter et Stephenson sont un précieux enseignement pour les oculistes qui ont rarement l'occasion d'observer la tuberculeuse du fond de l'œil. On retrouve ici presque tous les types déjà décrits par Bouchut qui avait passé une partie de sa vie à examiner le fond de l'œil des petits tuberculeux de son service des enfants-malades. Son atlas reproduit la plupart des cas exposés ici. Je suis d'autant plus intéressé par cette communication que j'observe en ce moment un cas de tuberculose choroïdienne manifeste chez un jeune homme atteint de tuberculose pulmonaire ganglionnaire. Ce tubercule représente le type figuré sur les planches de MM. Carpenter et Stephenson par une tache jaunâtre comprenant un cercle pigmentaire léger inclus dans la tache. Et à ce propos, je tiens à dire que la saillie en avant du tubercule choroïdien, dont on fait, à tort, un élément essentiel de diagnostic, peut ne pas exister. On le voit très bien sur plusieurs des planches de nos confrères anglais où les vaisseaux rétiniens passent en droite ligne sur la tache tuberculeuse sans faire un coude. On ne devra donc pas considérer la saillie en avant comme un signe essentiel du tubercule choroïdien. Chez mon malade, il en est ainsi; le tubercule n'est nullement en saillie.

M. GALLEMAERTS: J'ai eu l'occasion de pouvoir examiner à l'ophtalmoscope un certain nombre d'enfants atteints de méningite tuberculeuse. J'ai observé les lésions si bien représentées sur les planches de MM. Carpenter et Stephenson et j'ai fait, dans ces cas, le diagnostic de tubercules de la choroïde. Dans un cas où j'ai pu faire l'autopsie, j'ai trouvé le cerveau farci de tubercules et j'ai pu faire l'examen microscopique de l'œil. J'ai trouvé des lésions absolument semblables à celles qui sont représentées sur un dessin de nos collègues. La lésion anatomique siégeait dans la rétine et non dans la choroïde. Il y avait une infiltration dans les couches externes de la rétine; l'épithélium pigmentaire était desquamé; les cellules pigmentaires disséminées dans le tissu en plaques et non en boules. Je me demande si dans les cas diagnostiqués tubercules de la choroïde, il ne s'agit pas bien souvent d'une lésion de la rétine et si les tubercules de la rétine ne sont pas aussi fréquents que ceux de la choroïde.

M. L. DOR: M. Valude vient de dire qu'à son avis, la tuberculose du fond de l'œil était très rare. Or je crois que nous ne la diagnostiquons pas et que nous portons le diagnostic de scléro-choroïdite disséminée, de choroïdite maculaire, de rétinite hémorragique, etc., dans des affections qui sont en réalité tuberculeuses. Dans les coupes de MM. Carpenter et Stephenson, il y a quelques cellules géantes isolées ou noyées dans un tissu épithélioïde. Faut-il absolument que l'on trouve ces cellules géantes? Pourquoi ne pas faire le diagnostic uniquement d'après l'aspect du tissu épithélioïde lequel, pour un observateur compétent, est déjà suffisamment caractéristique.

M. DARIER: MMessieurs, je suis heureux de m'être fait le porte-parole de MM. Carpenter et Stephenson, et c'est avec plaisir que je constate que tous ceux qui ont étudié de près les magnifiques planches de nos confrères anglais y ont reconnu des cas nombreux de leur pratique. Pour ma part, je suis convaincu dès longtemps que bien des foyers de chorio-rétinite maculaires ou périphériques, en général isolés, ou par 2 ou par 3, surtout chez des jeunes sujets exempt à toute tare syphilitique héréditaire, sont le plus souvent de nature tuberculeuse. Plusieurs des dessins de MM. Carpenter et Stephenson tubercules éteints (obsolescent tubercules) m'ont rappelé des cas que beaucoup d'auteurs considéraient comme des lésions congénitales et même comme des colobomes, chez lesquels j'ai pu amener une amélioration notable de l'acuité visuelle par un traitement local par des injections sousconjonctivales. J'employais autrefois le cyanure de mercure et l'hétol, mais, ayant eu dernièrement un cas de ce genre qui fut très rapidement amélioré par 5 ou 6 injections de guaiacol en solution aqueuse à 1 per cent. très bien supportées et peu douloureuses, même sans acoïne. Aujourd'hui nous avons dans la tuberculine T.R. une pierre de touche et un moyen thérapeutique des plus précieux qui contribuera sûrement à élucider bien des diagnostics douteux. Je crois être l'interprète de toute la société en remerciant MM. Carpenter et Stephenson de nous avoir apporté une contribution si documentée à l'étude des tuberculoses choroïdiennes.

The Society for the Study of Disease in Children.

A MEETING of this Society, devoted to the exhibition of pathological specimens, was held on May the 4th, at No. 11, Chandos Street, W., Mr. GEORGE PERNET in the chair.

A Specimen of Congenital Pyloric Stenosis from an Infant of 6 weeks was shown by Dr. E. HOBHOUSE (Brighton). The child died the night before it was intended to operate.

Dr. EDMUND CAUTLEY inquired as to how long the symptoms had existed, as in some of the cases there was an acute onset.

Dr. HOBHOUSE, in reply, said the symptoms in his case came on gradually, more or less from the first week after birth.

A Specimen of Acute Yellow Atrophy of the Liver was shown by Dr. PORTER PARKINSON.

Mr. GEORGE PERNET asked if there was an history of syphilis in the case, as acute atrophy of the liver in adults had been traced to acquired syphilis.

A Specimen of Cerebrum with a Tumour situated in the Anterior Half of the Right Side, probably a Glioma, was exhibited by Dr. E. C. MACKAY.

A Larynx with Congenital Laryngeal Stenosis from a Child of 5 months was exhibited by Dr. EDMUND CAUTLEY. The epiglottis was folded on itself longitudinally, so that the superior aperture was much narrowed.

Dr. EDMUND HOBHOUSE (Brighton) did not agree with the view that the lesion of the larynx was limited to the epiglottis.

Dr. F. G. EMANUEL (Birmingham) asked whether the exhibitor thought the epiglottis had any association with the stridor; it was one of the theories that used to be put forward.

Dr. W. BEZLEY THORNE spoke of the spontaneous cure which such cases appeared to undergo.

Dr. CAUTLEY, in reply, thought the stridor in these cases was produced by the narrowing of the upper orifice of the larynx; the improvement in such cases was, he thought, due to the fact that the larynx became larger, and as it increased he thought the upper orifice increased.

A Specimen of Abnormal Sutures of both Parietal bones was also shown by Dr. CAUTLEY.

A Skull with Congenital Syphilis and Hydrocephalus was exhibited by Dr. G. A. SUTHERLAND. It showed well-marked craniotabes, also the results of intra-cranial drainage for hydrocephalus. The skull had contracted until the bones were over-riding.

A Specimen of Stomach showing Ulceration round the Pylorus covered with Diphtheritic Membrane was exhibited by Dr. LEATHAM.

Dr. THEODORE FISHER thought it remarkable that ulceration of the stomach did not take place more often than it did. He thought that bacilli in the stomachs of children dying from diphtheria must be a fertile source of production of toxins.

Dr. LEATHAM, in reply, supposed one reason diphtheria lesions in the stomach did not occur more frequently was owing to the presence of hydrochloric acid there.

A Microscopic Section of a piece of Membrane from the Pylorus showing Diphtheria Bacilli was also shown by Dr. LEATHAM.

Three Specimens of Congenital Deformity of the Heart were shown by Dr. J. G. EMANUEL (Birmingham). In the first (lent by Dr. G. W. POWELL) the aorta and pulmonary artery arose from a single ventricle, probably the right. All the valves were normal. In the second (lent by Dr. O. J. KAUFFMANN) the aorta arose from the right ventricle and the pulmonary artery from the left and the foramen ovale was widely open; this specimen was from a boy, aged 11 years. In the third (lent by Dr. STACEY T. WILSON) the membranous part of the interventricular septum was absent and the aorta arose as much from the right as from the left ventricle.

Dr. THEODORE FISHER thought the case of the boy of 11 years was very

interesting, because there was a museum specimen of a patient who with a similar malformation died at the age of 40 years.

Dr. EMANUEL, in replying, said there was no history of congenital syphilis in any of the cases, and he thought the conditions were purely developmental.

A Specimen of Primary Sarcoma of Lung removed from a Girl aged 5 Years was exhibited by Dr. F. LANGMEAD. The signs during life were those of pleural effusion. Post mortem the left side of the thorax was occupied by a large mass of new growth; it was situated within the lung, and was strictly limited by visceral pleura, except in the upper and outer part of the thorax. No growth was found elsewhere.

Mr. MILNER BURGESS (Harlesden) inquired as to the early lung signs, but Dr. Langmead said the case was not seen until there had been cough and pain for five months.

A Specimen of Brain showing Meningeal Hæmorrhages due to Whooping-Cough was also shown by Dr. LANGMEAD. The coughing had not been especially severe before the onset of the nervous symptoms.

Dr. THEODORE FISHER thought the hæmorrhage was very possibly secondary to thrombosis of the vein: there certainly was thrombosis of the vein. He had had four similar cases under his notice, and only in one of them was there any marked cough.

A Skull and Lower Jaw from a Child who died of Meningitis were also shown by Dr. LANGMEAD. The skull showed several areas of tuberculous osteitis; the bone, with the exception of the inner table, was replaced by caseous material; a similar condition was found in the lower jaw and malar bones.

A Microscopical Section from the Base of a Gastric Ulcer from a Girl, aged 8 Months, showing many Tubercle Bacilli, and a second specimen from a boy, aged 1 year and 11 months, also showing tubercle bacilli, were exhibited by Dr. LANGMEAD.

Microscopical Sections of Nævi Cystepitheliomatosi Disseminati (Lymphangioma Tuberosum Multiplex) were exhibited by Mr. GEORGE PERNET. This is a very rare disease, consisting of numerous small tumours situated about the upper part of the front of the chest mainly, but also on the back and face. The specimen was removed from a woman, aged 25 years, in whom the growths are said to have appeared at 16. The histological appearance are small cysts with colloid contents and strands and aggregations of cells, which Mr. Pernet considered were of epithelial origin.

A Drawing and Photograph of Racial Pigmentation on the Buttocks of a Siamese Baby, received from Dr. Gimlette, of Kelantan, Siam, were also exhibited by Mr. PERNET.

☞ **The Brain of a Child, aged 16 Months, during Life the Subject of Head Banging** was exhibited by Dr. GEORGE CARPENTER.—The specimen showed atrophied convolutions, thickened and opaque membranes, considerable increase in the number of medium-sized blood-vessels in the thickened membrane. A history of syphilis. The child died of bronchopneumonia.

A Specimen of Tuberculous Kidney Removed by Operation from a Girl, aged 10 years, was shown by Dr. GEORGE CARPENTER and Mr. EWEN STABB. The kidney showed typical tuberculous disease, and the ureter was infiltrated. Tubercle bacilli were found in clumps in the urine, the ureters were tapped during life, and the disease was localised to the left kidney, which was removed on that evidence. A small portion of tuberculous ureter was left, the bladder orifice of which showed tuberculous disease. Since the operation the child had been gaining flesh, but there are still a few tubercle bacilli in the urine.

A Specimen of Pyo-Pneumothorax with Multiple Abscesses in the Base of the Lung communicating with the Pleural Cavity by Three Sinuses was shown by Dr. GEORGE CARPENTER.

A Specimen of Congenital Morbus Cordis was also shown by Dr. GEORGE CARPENTER. The specimen showed two cusps to the pulmonary valves, a dilated pulmonary artery, right-sided hypertrophy, a perforated septum ventriculorum, the aorta arising naturally and the ductus arteriosus closed. It was removed from a "blue baby," aged 2 years 3 months. During life there was a loud systolic bruit over the pulmonary area and a thrill.

Specimens removed from a Case of Interstitial Nephritis and Cirrhosis of the Supra-renal Capsule, in an Infant 5 weeks old were shown by Dr. GEORGE CARPENTER. The kidneys appeared normal to the naked eye. The supra-renal capsules were enlarged, opaque, yellowish-white colour. Sections of the right showed what appeared to be an old hæmorrhage. Microscopic section of the supra-renal capsule showed chronic inflammatory changes. Microscopic section of the kidneys showed interstitial nephritis, atrophied glomeruli, and the epithelium of the tubes was shed and necrotic.

(1) **A Specimen of Fibro-Sarcoma from the Parotid Gland.** (2) **An Angio-Sarcoma from the Parotid Gland.** (3) **A Sac from a Right Inguinal Hernia, studded on its Inner Surface with Miliary Tubercles.** were exhibited by Mr. H. S. CLOGG.

Editorial.

THE SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN AND THE BROCA BANQUET.

THE Wightman Lecture of the Society for the Study of Disease in Children was delivered on the 18th of last month by M. le docteur Broca, of Paris. In spite of the fact that it was M. Broca's first visit to this country, he delivered his lecture in fluent and literary English, while its subject, "Chronic Appendicitis and the Early

Diagnosis and Treatment of Acute Appendicitis in Children," which appears in the current issue, is a welcome addition to the literature of this affection. It is needless to say that the lecture-room was crowded and the audience most appreciative.

The same evening Mr. R. Clement Lucas, Chairman of Council, presided over a banquet given by the Society for the Study of Disease in Children at the Imperial Restaurant, when over a hundred gentlemen were present to welcome our distinguished guest, including many of the most well known members of the medical profession, while the Church was represented by the Very Rev. the Archdeacon of Middlesex.

After the usual loyal toasts, that of "M. Broca" was proposed by Sir W. Broadbent and responded to with much enthusiasm. The name of Broca is one which is a household word to all from the very commencement of their medical studies, and Broca's convolution has even travelled out of its legitimate sphere into the realms of fiction, where, owing to its injury, the heroine is prevented from denouncing the villain of the story. M. Broca is the distinguished son of a distinguished father; he is well known by all who study disease in children as a prominent member of the Surgical Staff of the Hospital for Sick Children in Paris, where he may be seen punctually at nine o'clock each morning, visiting his patients or operating in the theatre. He is a frequent contributor to the various medical journals, and those of us who read the French ones are always sure of finding suggestive discussion and matter worthy of thought under his name. M. Broca's personality is a fascinating one, and, if it were needed, would do much to help to cement that *entente cordiale* which has always existed between the men of science on either side the channel.

The banquet was undoubtedly a great success, and the presence of numerous and distinguished medical and other guests points to the important place which the Society for the Study of Disease in Children has taken so soon after its foundation among the medical societies of London. Its Annual Reports, the hall mark of the Society, are a welcome addition to English medical literature and well merit the eulogy of a distinguished Irish physician, who described them as "the finest of their kind he had ever seen."

The best thanks of the Society are due to the Honorary Secretaries, Dr. Edmund Cautley and Mr. Francis Jaffrey, through whose labours the evening was spent so pleasantly.

Abstracts from Current Literature.

Medicine.

Case of sero-fibrinous pneumococcic pleurisy in a baby six weeks old (*Société de Pédiatrie*, October 17, 1905; '*Arch. Gén. de Méd.*,' October 24, 1905, No. 43, p. 2745).—**Lesné** and **Tinel** describe a case of this nature. The child was breast-fed. The signs of pleural effusion were evident on the left side and were confirmed by exploration. Recovery resulted.

A. ERNEST JONES.

Mumps infection and school hygiene (*Société de Méd. et de Chir. Prat.*, October 12, 1905; '*Arch. Gén. de Méd.*,' 1905, No. 44, p. 2809). **Paul Guillon** read a paper on this subject. Usually the complaint is most infectious at its onset. Occasionally—and the author has seen such a case—the infection comes from a convalescent patient. The official practice in French schools is to exclude children for ten days, which the author considers an insufficient period.

A. ERNEST JONES.

Infantile scurvy (*Société Méd. des Hôpitaux*, November 3, 1905; '*Arch. Gén. de Méd.*,' 1905, No. 45, p. 2876).—**Comby** adds two more cases of this complaint to the seven he has already published. The first child, aged 8 months, had been fed on oxygenated milk for three months; the second, a big child, aged 10 months, had had Gaertner's maternised milk since a month old. Painful pseudo-paraplegia was present in both cases, and gum hæmorrhages in the former—the only one having teeth. Treatment with orange juice cured both in a week.

A. ERNEST JONES.

The stages of tuberculosis in children ('*Rev. Mens. des Mal. de l'Enf.*,' November, 1905, p. 481).—**Hutinel** and **Lereboullet's** communication to the International Congress contains some interesting suggestions. They state that the first stage often develops at a very early age, usually in the mediastinal glands, more rarely in the mesenteric, where it remains latent. The mode of entry is pulmonary, digestive, cutaneous, or otherwise. This tuberculosis may remain latent indefinitely or become attenuated; it even seems in certain cases to confer a kind of immunity against further attacks. These are the favourable cases which end in more or less complete cure. This is proved to be the case by the frequency with which tubercular foci are found at the autopsies made at the *Enfants-assistés* (more than a third of the cases), and by the fact that there were only 19 phthisical children in 18,000 of those sent to live in the country. In other cases disturbances of nutrition occur, the so-called pre-tubercular state is established, and instead of protecting, it predisposes to a further and more serious tuberculosis. This second stage is either an auto-infection, often excited by some intercurrent affection such as measles or whooping-cough,

or is the result of a fresh access of tubercle from without, to which the debility caused by the latent tubercle renders the patient more vulnerable. It may then develop as either an acute, sub-acute, or chronic affection. As it is curable it may sometimes become quiescent until fresh causes start a third stage similar to the second. This hypersensitivity to attacks by Koch's bacillus is comparable to the hypersensitivity of certain serums and toxins described under the name of *anaphylaxis* (Bail, 'Wien. klin. Woch.', XVIII, 1905, p. 211). Bail presupposes certain substances to which he gives the name of "agressines" formed in the exudation produced by the latent tubercle. These hypothetical substances prevent the action of phagocytosis upon freshly inoculated bacilli. This evolution of infantile tubercle by stages is comparable to what occurs in other chronic affections such as syphilis, glanders, and specially leprosy. The explanation given shows the importance, not only of preventing tubercular contagion, the effects of which act equally on those who are free from as on those who are the subjects of latent tubercle, but also of strengthening the organism to defend itself against attacks of Koch's bacilli, which too often already exist there.

VINCENT DICKINSON.

Typhoid fever in children ('Arch. Gén. de Méd.,' No. 4, 1906, and 'Gaz. Med. Ital.,' No. 11, 1906, p. 103).—Pater and Halbron in an extensive investigation call attention, among others, to the following facts. A typical case generally begins suddenly (Rilliet and Barthez, Sevestre, Merklin), and it is not unusual to find a temperature of 40° C. on the second day (Marfan). Two very constant symptoms are repeated vomiting, alimentary, watery, or bilious, and abdominal pain, subacute and indefinitely localised, sometimes paroxysmal, at others continuous. This pain, noticed in about one half of the cases, and which seems to have some relation to constipation or to diarrhoea is, in conjunction with the vomiting, one of the most characteristic phenomena of the initial stage of typhoid in a child, and must be considered a valuable diagnostic sign. Diarrhoea is very frequent in children attacked with typhoid, but is only profuse in special cases, and is of grave import. At the commencement of convalescence slight rises of temperature are common in connection with the administration of solid food and with constipation. The rose spots are very frequent, 81.5 per cent. of the cases. Enlarged spleen was present in 82.5 per cent. of the cases, and was found early, usually by the fifth day. The pulse was dicrotic, with greater frequency the older the child, and is a most important sign since by appearing very early it is a diagnostic indication between typhoid and appendicitis; it is not, however, of unfavourable import. Instead of continuous elevation of temperature large oscillations of 1.5° to 2° are frequent; transient remissions and sudden falls are not rare (Marfan). Broncho-pneumonia is a common complication but runs a benign course (contrary to the opinion of Brouardel and Thonoit). Kernig's sign was only found in three out of sixty-two cases with meningeal complications. Green serous diarrhoea, observed in 14 per cent. of the cases, is of grave import, and when associated with copious, frequent and unrestrainable vomiting, and with a sudden fall of temperature, is a precursor of death. Relapses are not rare and present two peculiarities: their gravity is often as great as the primary infection, and their multiplicity (even four have been observed in the same individual). They appear from four to fifteen days after the end of the febrile period. Apart from these relapses, certain slight elevations of temperature occur during convalescence, sometimes sudden and

transitory, sometimes less marked but of longer duration. According to Guinon, they represent exaggerated reactions in a feeble organism to normal stimuli. The frequency of cases increases markedly after ten years of age. The mortality is greater the younger the age, and is somewhat higher in girls than in boys (Hayem).

VINCENT DICKINSON.

Convulsions in early infancy ('*Pediatrics*,' 1906, p. 85).—**John Thomson** gives as predisposing causes (1) age; (2) general diseases, such as rickets; (3) inherited nervousness; (4) permanently damaged state of the brain. He classifies the most important exciting causes into three groups: (1) Intra-cranial causes, such as concussion, hæmorrhage, tumour, abscess, meningitis, and cerebral congestion or anæmia; (2) general acute morbid conditions, *e. g.* pyrexia, uræmia, and poisons; (3) peripheral nervous irritation, *e. g.* undigested food, dentition, otitis, and phimosis. The attacks vary in severity from slight momentary unconsciousness to severe spasm, with profound and long-continued loss of consciousness. They may be mistaken for mild faints. Spasms of colic, laryngismus, and masturbation in female infants are sometimes diagnosed as convulsions. The presence of mental defect after a fit indicates that it probably existed before, and was the cause rather than the effect. Recurrent attacks may cause increasing dementia. Occasionally an attack is fatal. Temporary damage to the brain may cause hemiplegia, aphasia, amaurosis, or intellectual dullness. It is essential to discover the cause. Fits, which begin after the second week of life, are not likely to be due to birth-injury. Attacks like those of *petit mal* suggest serious cerebral defect. Unilateral spasm of Jacksonian type may be due to a cortical defect. Prolonged unconsciousness may indicate an organic cerebral cause. Symptoms of any bodily disease must be carefully looked for. Treatment of the attack: Mustard pack or hot bath; chloroform; chloral, 5–10 gr. *per rectum*; morphine, $\frac{1}{2}$ gr. for a one-year-old child. Preventive treatment must be purely expectant in cases due to injury at birth and the prognosis guarded. In dyspeptic cases, whether due to indigestible food or auto-intoxication, attend carefully to the diet. Breast-feeding is advisable. If no cause is discoverable, especially in those cases where numerous fits occur daily, get the child quickly under the influence of chloral, 1–2 gr. every two hours. It can be increased until the baby is almost too drowsy to swallow, and continued until the fits have ceased for twenty-four to thirty-six hours. Much care is necessary in feeding, or inhalation pneumonia may be set up. The prognosis must be guarded, but is, on the whole, favourable. Cases associated with rickets are often cured by treatment of the disease.

EDMUND CAUTLEY.

Curds in infants' stools ('*Pediatrics*,' 1906, p. 1906).—**P. A. Polter** brings forward evidence showing that the casein curds in the stools may, in some instances, be due to a deficiency of proteids in the milk, whether human or bovine. Fat curds are distinguishable from casein curds, are less white and hard, and are soluble in alcohol and ether. A breast-fed baby was passing curds at the age of five months, and the mother's milk was found to contain only 0.5 per cent. of proteid. The condition persisted when the diet was changed to whey, but disappeared when sufficient milk was added to raise the percentage of proteid to two. A similar peculiarity was noted in five bottle-fed babies. **Adrianne** ('*Arch. of Pediat.*,' 1903) pointed out the possibility of deficient proteid causing bowel disturbance. Polter

suggests that it is due to an excess of acid, uncombined or free, is present with insufficient food, and forms an insoluble precipitate. Casein with a dilute acid forms a loose precipitate which dissolves entirely in salt solution, but with an excess of acid it forms an insoluble precipitate (Hammerstein). Another possible explanation is that it depends on the relative proportions of fat to proteid.

EDMUND CAUTLEY.

Glandular fever (*Arch. of Pediat.*, 1906, p. 11).—A. E. Vipond pleads that glandular fever (*Drüsenfieber* of Peiffer, *Flèvre*, Ganglionaire) should occupy a more prominent position among the infectious diseases, and reports twelve cases. It is rarely seen after sixteen years of age. Comby has recorded a case at the age of seven months. Usually it affects children four to twelve years old. Vipond's cases had an incubation period of five to seven days. Onset sudden, with headache, pain in limbs and abdomen, vomiting, chills, anorexia, and fever. In twenty-four to forty-eight hours patient complains of pain and stiffness in neck, and glandular enlargement is found. In only one was there any sign of pharyngitis. The axillary and inguinal glands are generally affected. Possibly abdominal pain is due to the mesenteric glands being involved. In only one was the spleen enlarged. The liver was unaffected. The fever persists for three to seven days, and frequently ends by crisis and sweating. Suppuration probably does not occur in true glandular fever. Milder cases also occur. The disease is rarely fatal. A diagnosis cannot be made until the lymph nodes are evident and a local cause of the enlargement can be excluded. B. Thornton has reported glandular enlargement associated with erythema nodosum, and suggests that glandular fever may be due to the rheumatic poison.

EDMUND CAUTLEY.

On changes in the osseous system in scurvy and in Barlow's disease (*Jahrb. f. Kinderheilkunde*, vol. LXII, No. 6).—E. Looser insists on etiological, symptomatical, and pathological grounds on the identity of Barlow's disease with scurvy; but whereas in scurvy, especially in the young, skeletal changes are invariably present, these are in Barlow's disease only due to the respective localisation of the hæmorrhages. He proposes the name of "suckling's scurvy" for Barlow's disease.

O'C. FINIGAN.

A contribution to the symptomatology of Barlow's disease (*Munch. med. Wochenschr.*, No. 43).—E. Schlesinger reports an unusual case of this disease, in which the subperiosteal hæmorrhage was situated at the proximal epiphyseal line of the femur, and in which the first symptom was exophthalmos due to an orbital hæmatoma; in other respects the case conformed to the usual type. The child, which had been brought up on artificial food (Crato's), was cured in ten days by being put on milk, heated just up to boiling point.

O'C. FINIGAN.

On the blood-pressure in healthy children (*Arch. f. Kinderheilkunde*, vol. XXII, Nos. 5 and 6).—K. Oppenheimer and S. Bauchwitz examined several smaller and older children with Riva Rocci's apparatus as modified by Sahli. They found that with increasing age the blood-pressure rises; a meal, and especially a generous fluid intake, produces a marked rise, though not always in sucklings. Psychological excitation produces a rise; exercises such as jumping, etc., may or may not have a like effect.

O'C. FINIGAN.

Habit spasm in children (*Lancet*, December 16, 1905).—**Still's** excellent paper on this subject contains many important and suggestive facts. He prefers the term "habit spasm" as being more descriptive than that of "tic." The most frequent form of spasm is rapid blinking of the eyes or a more forcible closure of the eyelids. This movement was present in 47 per cent. of his cases. Next in frequency come various movements of the face, perhaps most often a twitch of the nose. One or other of these was noted in 48 per cent. Various head-jerking movements were present in 30 per cent. of his cases. The limbs are less commonly affected, the upper being more frequently involved than the lower. In the upper extremity the commonest movement is a sudden elevation of one or both shoulders. Trunk movements are still more uncommon. A common form of habit-spasm is the frequent repetition of some particular sound which may be like that made in "clearing the throat," or a more obvious "hem," or may be of more articulate character, resembling some syllable or word which the child utters in season and out of season in the most inopportune manner. These habit spasms may occur singly or in groups, constituting, as it were, a habit clonus. It is important to note the limitation of these spasms to different parts at different times and the tendency of one form of spasm to change into another after a varying period. A useful diagnostic point is the frequent diminution or total cessation of the spasm while the patient is under special observation. Sometimes these habit spasms are associated with psychical disorders. As regards etiology, Still finds the sexes affected almost equally. The age incidence is interesting. It is most frequent between the ages of six and eight, although common between the limits of five and ten years. Disturbed sleep is very frequent in these children. Headaches, enuresis, "nervous diarrhoea," stuttering, and urticaria were observed in different cases. Convulsions had occurred either in infancy or early childhood in 7 per cent. of the cases. Still emphasises the effect of school life on cases of habit spasm. It is apt to be mistaken for chorea. Treatment consists in rest from the worries entailed by school life, and getting rid of all sources of local irritation. A mixture of arsenic and bromide is sometimes useful; so are ergot and valerian. At times a complete change of surroundings affords the readiest means of cure.

JAMES BURNET.

A study of chorea (*Canad. Pract.*, December, 1905).—**R. King** gives an analysis of 173 cases of patients treated at the Royal Victoria Hospital, Montreal. None of these patients were under four years of age, and only four cases were under six years. Ten cases were twenty years and upwards; 73·2 per cent. were females. The influence of season was shown, the highest point in the year's tracings being almost invariably in March, another rise in the curve being during June and July; the lowest part of the curve is in December. A history of previous rheumatism was given in 22·6 per cent.; and joint pains and swellings occurred immediately before the attack in 10·4 per cent., and during the chorea in 9·6 per cent. There was a history of tonsillitis in 12·2 per cent. of the cases. Endocarditis occurred in 69·6 per cent. of all cases. In two thirds of the cases no cause was assigned; in 15·7 per cent. there was a history of fright, worry, or excitement. Reflex irritation was not a prominent cause. There was a family history of chorea in 17·4 per cent. of the cases, and of rheumatism in 26·1 per cent., while 37 per cent. had had one previous attack, 10 two previous attacks. The left side was generally most affected; weakness was noted in a quarter of the cases, but there was only one case of chorea paralytica. The knee-jerk was

increased in 30 per cent., but in only 2 was the sustained jerk noted. Endocarditis occurred in 69.6 per cent.; pericarditis was only noted once, tonsillitis four times; anæmia was marked in 19.9 per cent.; skin eruptions 11.3 per cent., herpes being the most frequent.

J. PORTER PARKINSON.

Pathology.

Pathology of heredo-syphilis (*Soc. de Biologie, October 28, 1905*; '*Arch. Gén. de Méd.*' 1905, No. 45, p. 2875).—**Levaditi** had studied the life-history of the *Spirochaeta pallida* in two cases of heredo-syphilis, one which had discrete lesions, the other diffuse. He was able to observe its passage into the liquid of a blister, produced on even the healthy skin.

A. ERNEST JONES.

Family contagion of tuberculosis in children (*Congrès de la Tuberculose*, 1905; '*Arch. Gén. de Méd.*' 1905, No. 45, p. 2857).—**Comby** expresses the opinion that heredity plays no part in the production of tuberculosis, even as regards any transmitted predisposition. Family contagion explains all the evidence usually adduced in this connection. In 1026 autopsies of children below ten in hospital, in 386 (over 37 per cent.) tuberculosis was found. Of these 386 cases at least 376 (over 97 per cent.) had caseous bronchial glands. There was not a single case of primary intestinal tuberculosis. Before three months only 2 per cent. of the children were tuberculous, from three to six months 15 per cent., and so on with an increasing percentage. The main path of entry is considered to be the respiratory one. Before the third session of this Congress, which was devoted to the subject of tuberculosis in children, was read a number of interesting and important papers.

A. ERNEST JONES.

Gangrene in typhoid fever (*Soc. Méd. des Hôp., December 8, 1905*; '*Gazette des Hôpitaux*,' December 12, 1905, No. 141, p. 1687).—**Bruhl** gives an account of a young girl who, in the course of a typhoid fever of moderate intensity, suffered from an obliterating arteritis of the popliteal. This caused gangrene, which necessitated amputation. On examining the artery the lumen was found to be completely obliterated and the three coats were inflamed. Bruhl comments on the rarity of this accident in typhoid fever, but points out that it is much more frequent in children than in adults.

A. ERNEST JONES.

Giant liver cells in congenital syphilis ('*Virchow's Archiv*,' vol. CLXXXII, No. 2).—**Oppenheimer** found in seven cases of congenital syphilis giant-cell formations in the liver. They were present only if also other inflammatory changes could be detected, such as cirrhosis and circumscribed necrosis. Oppenheimer believes that the giant cells are derived from the liver-cells by unicellular hypertrophy and not by a confluence of several cells.

O'C. FINIGAN.

Cases of stomatitis and tonsillitis in which Vincent's spirochaeta and bacillus were present ('*Lancet*,' February 17, 1906).—**W. H. Harwood-Yarred** and **P. N. Paton** describe eleven cases of this affection which, when occurring in the fauces, is known as Vincent's angina. They were seen at St. Thomas's Hospital and occurred in epidemic form in the

neighbouring districts. The majority were under seven years of age, and only three were adults. The onset was insidious, with slight sore throat and some malaise. When the fauces were affected there was some swelling and inflammation of the parts; the characteristic feature was the presence of a greyish-white membrane on the tonsil which tended to invade the faucial pillars and uvula and did not resemble the thick white membrane of diphtheria; one case, however, showed patches of membrane very like that of diphtheria, which left a bleeding surface when peeled off, but no diphtheria bacilli were found. All the cases got well rapidly under the use of a simple antiseptic mouth-wash. Of the tonsillar cases, four in number, three had carious teeth. In seven cases the disease affected the cheek or gums and had the appearance of ulcerative stomatitis; all had carious teeth around which the disease seemed to arise: the gums were spongy and the breath offensive. All the eleven cases were examined bacteriologically; the clinical appearances were fairly distinctive, for in every case after the first the diagnosis was made clinically and confirmed bacteriologically. The bacillus is fusiform, slender, beaded, and usually slightly curved; it occurs occasionally in short chains. The spirilla vary as to the number of spirals, which are generally five to eight. The authors suggest that this disease is probably commoner than is suspected, as the organisms are cultivated with difficulty and will not be found by the ordinary method of examining swabs for the diphtheria bacillus.

HAROLD BARWELL.

Otology, Laryngology and Rhinology.

Congenital laryngeal stridor (*'Arch. of Pediat.,'* December, 1905.)—**Henry Koplik** gives an excellent plate of the larynx taken from a male child, aged 1 year, suffering from this affection, who died of pneumonia. It shows the same deformity which has been found post mortem by Lees, Refslund, and Variot, and which has also been recognised during life. The epiglottis is folded on itself and compressed laterally together with the ary-epiglottic folds, so that the upper aperture of the larynx is represented by a narrow longitudinal slit. Thomson and Hewlett believe that the causal agent is an inco-ordination of the respiratory mechanism, and have produced the deformity post mortem by suction on the trachea; but Refslund's case, where the malformation was marked at the age of two and a half months, would appear to militate against the theory of a post-natal mechanical cause; so also the theory revived by Hocksinger, that an enlarged thymus is the cause of the symptoms, appears improbable.

HAROLD BARWELL.

Papillomata of the larynx in young children (*'Annales des Maladies de l'Oreille, du Larynx,' etc.,* January, 1906).—**J. Garel** discusses the treatment of this affection, and describes two cases in which the growths were attacked by Killian's direct method. The principal symptom is hoarseness progressing to aphonia, and with the small glottis of a young child there is distinct danger of asphyxia. Examination is possible in quite young children, sometimes by the ordinary method with the tongue held out in a cloth or pulled forward with an Escat's tongue-depressor; sometimes by direct inspection, the head being extended backwards and the tongue pressed downwards and forwards by Kirstein's instrument. In children under eight or nine years of age the growths cannot be removed under inspection with the laryngoscope. Until recently the only method of treatment, if asphyxia threatened, was tracheotomy, either alone, in the hope that the

papillomata would disappear, which occasionally happens, or combined with laryngo-fissure, performed at the same time or later; laryngo-fissure is, however, dangerous both to life and to the voice. Recently Killian has invented a tube-shaped spatula by means of which direct access can be obtained to the larynx through the mouth; the instrument somewhat resembles the ordinary vaginal speculum set at right angles on a stout handle, and is used in the following way: The patient is anæsthetised and placed in the dorsal position with the head hanging over the end of the table; the spatula is introduced to the posterior wall of the pharynx and then straightened until the epiglottis is brought into view; this is lifted up with the beak of the instrument, which is then passed just into the cavity of the larynx. With the use of a head lamp an uninterrupted view of the glottis is obtained. The author has employed this method on two children aged respectively three and five years.

HAROLD BARWELL.

Study of the transitory deafness of mumps ('*Arch. Gén. de Méd.*' November 14, 1905, No. 46, p. 2881).—Ed. Chapellier considers this matter in great detail in an article of thirty-five pages. After discussing the literature of the subject and referring to the recent researches of Laveran and Catrin on the micrococcus of mumps, he describes 109 cases he had recently observed. His final conclusions are as follows: Diminution of auditory acuity is present in nearly all cases of mumps, and is due to a salpingitis. This may or may not cause otitis, but usually does not. It is more marked in the cases with post-dural and pharyngeal infection. Oral asepsis has a considerable effect both as regards prevention and amelioration of the condition.

A. ERNEST JONES.

Therapeutics.

The treatment of prolapsus recti in children by paragangline vassale.—S. Riva-Rocci publishes a case ('*Gaz. Med. Ital.*' 1906, No. 10, p. 91) in which local application of this substance had no effect, while administration by the mouth was rapidly and decisively efficacious. The child, aged 2 years, had diarrhoea, followed after a fortnight by rectal prolapse at first intermittent, then permanent; the surface was inflamed and ulcerated. Two injections were given daily of 200 c.c., with 50 drops of paragangline in each, the method followed by Miserocchi in his published cases ('*La Pediatria.*' 1904, No. 8). After four days, there having been no result, the dose was doubled, but after another four days there was still no change. Paragangline was then given by mouth with a view of improving the general gastro-intestinal condition as recommended by Cattaneo ('*La Pediatria.*' 1905, No. 5), ten drops in a teaspoonful of sweetened water four times daily. The prolapse disappeared the same evening, and did not reoccur on defæcation the next morning; twenty drops a day were then given for a week, and ten drops a day for another week. No recurrence took place, and a month later the child was perfectly healthy. It may be objected that if the injections had been continued the same result would have been obtained by local application, but Nicolini published a case ('*Gazz. degli. Osped.*' 1906, No. 15), in which local applications of tannin, ergotin, and strychnine had no effect, while after the administration of forty drops of paragangline in small doses the prolapse disappeared spontaneously in three days.

VINCENT DICKINSON.

The serum treatment of fibrinous pneumonia (from the Lazarus Kranken und Diakonissenhaus at Berlin) (*Munch. med. Wochenschr.*, 1905, No. 39).—**Lindenstein** treated four cases of pneumonia with Römer's pneumococcus serum (Merck). The most noticeable result was an immediate improvement of the general condition, with inhibition of the spread of the pneumonic infiltration. The crisis took place on the seventh day. Only in one case had the injection to be repeated as the infection had spread, but also here the excellent effect on the general condition was most marked.

O'C. FINIGAN.

The active principles of the extract of male fern and their therapeutics (*Therap. Monats.*, August, 1905).—**A. Jaquet** reports his experiences with "filmaron," an amorphous, yellow powder, soluble in chloroform and ether, insoluble in alcohol and water. In all he reports thirty-eight cures, every one of them being one of *tania saginata*. His method is to give early in the morning ten to fifteen grains (for an adult) dissolved in about half drachm of chloroform with one ounce of castor-oil; this is followed in an hour's time by one to two tablespoons of castor-oil, and if after three hours no motion is passed, by an enema. There were only four negative results, which he ascribed to an insufficient dose of filmaron. Apart from a quite inconsiderable amount of griping in a few of the cases he observed no evil effects of the drug.

D. O'C. FINIGAN.

Subcutaneous isotonic injections of soda-water in athrepsia (*Gazette des Hôpitaux*, 1905, p. 1623).—**Potocki** and **René Quinton** record six more cases treated successfully by this method. They consider it established, thanks especially to the researches of Lachêze and Quinton, that it possesses distinct superiority to the usual artificial saline injections. The cases now described showed severe disorders of nutrition, extreme wasting, and bad gastro-enteritis. Stress is laid on the size of the dose: 10 c.c. are injected every other day in small prematurely-born infants, and in older children as much as 50–60 c.c. Smaller doses are quite inefficacious. The water should be taken from a pure source and at a depth of 10 metres: it is made isotonic by the addition of the due proportion of simple sterilised water.

A. ERNEST JONES.

Surgery.

Cæsarean section on a child aged 12 years and 8 months.—This child when five months pregnant had a generally contracted pelvis, two and a half inches in conjugate and the same in transverse diameter; the outlet was also contracted; about a week before the end of the period of pregnancy a slight trace of albumin was found in the urine, but the next day severe convulsions began, accompanied by pulmonary œdema, with livid face, a small and very rapid pulse. She was at once operated upon, and after the uterus was emptied the pulmonary œdema lessened. She was given a hot bath and an intravenous infusion of 1500 c.c. opaline solution. However, about two hours after the operation convulsions returned and some hours later the pulmonary œdema also recurred and the patient died. The child is living. At the autopsy there was pulmonary œdema, fatty degeneration of the liver, and acute parenchymatous nephritis, with much dilatation of both ureters.

J. PORTER PARKINSON.

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Original Articles.

THE PRINCIPLES OF TREATMENT IN DISEASES OF CHILDREN.*

By J. MADISON TAYLOR, A.B., M.D.

"Oh, the little more and how much it is,
And the little less and what worlds away!"

KNOWLEDGE of principles of therapeutics adapted to the conditions of childhood is of far greater importance than to those of the adult. Differentiation must be finer; greater niceties of physiologic reasoning and more caution and exactitude must be exercised because of the persistence of embryonal features not yet fully understood or appreciated. Scientific medicine is based upon adult findings. Pediatrics is still practically a modification of these designed to fit as well as possible.

The problems of childhood are far more complex than those of adults, if the sphere of psychoneurosis be excluded. The key to success in treatment lies in acquiring an intelligent appreciation of the intricacies of infantile, childish, and adolescent aspects of growth, change, derangement, and capabilities for repair. Nothing can be

* Address on "The Progress of Therapeutics in Pediatrics" before the American Therapeutic Society, New York, May the 4th, 1906).

more worthy of our best efforts than to acquire facility in the treatment of childish ailments. Errors and omissions in combating morbid forces in them impair for all time constitutional integrity. They cannot be condoned or adjusted as are similar omissions or perversions assailing the adult.

The child is a vitalised mechanism of indescribable delicacy. If disorders pass unchecked into disease the effects are both direct on structures, and indirect on development, bearing heavily upon conformation, distorting organs, checking growth in the brain and the controlling centres. Attention given to the correction of childhood's maladies, therefore, cannot be too urgently encouraged.

The cells of the child are in process of almost primitive evolution. Selective affinity is not yet developed; resistance is low; irritability, conductivity, and other inherent properties are unstable. Resistance is so small that even a slight excess or prolonged continuance of an irritant, whether it be photic, thermic, chemic, toxic, or other, may produce violent perturbations and readily cause such alterations in cellular integrity as to induce profound and lasting damage. The balance of the vasomotor mechanisms in the young has not yet been developed to a degree which enables them to sustain safely the effects of over-much interference. The cerebro-spinal nerves respond so swiftly to irritants that reflex potentials may readily become overwhelming. Hence, *e.g.*, convulsions follow relatively slight causes.

The *elemental principles* by which we can be guided in combating the disorders of infants and children should be thoughtfully formulated for daily use. We can at least determine the form and direction which deviations from normal functionation will probably take and outline safe measures by which they can be modified or overcome.

The keynote of pediatric medication is the encouragement of development, the maintenance of auto-protective forces. The healthy infant is a being whose organic development has proceeded on normal lines and is in cellular equipoise, a product of the resultants of sound heredity, wholesome antenatal conditions, and suitable environment maintained within reasonable limits. Small variations are, however, permissible. We are usually compelled to estimate the status of development chiefly upon inferential evidence. We may expect little more to guide us than the testimony of our trained observation until we shall know more of physiologic variants and the potentialities of persisting embryologic factors. Even where this general survey furnishes all that can be reasonably expected there remains a larger source of functional derangement of

which we have had, as yet, indicated only a few leading facts and principles, viz. as to those of the internal secretions, the regulative nervous mechanisms, and the processes of oxygenation.

Bio-chemistry is a field from which we may hope for practical therapeutic hints of far greater significance than from pathology as it is generally conceived. To secure a clear comprehension of indications the avenues of knowledge are hedged about with difficulties especially because physiology has not yet furnished us with sufficient working data.

In the use of drugs, or the explanation of their effects, we are compelled constantly to fall back upon a careful judicious empiricism. When we are able to *know* that a chosen medicine or preparation *does produce* certain specific and uniform effects, we shall then be able to offer explanations of its specific and individual applicability, next to anticipate and formulate reasons for deviations and exceptions. Bio-chemistry may then explain these as it becomes elaborated and illumine our dark corners by new phases of truth.

An obvious and imperative need is a fuller and broader study, a clearer interpretation, of existing data. *We are too eager for new facts to adequately sift, correlate, and test those already in our hands.* Thus the status of organic and structural development, especially of the blood and blood-making organs, the ductless glands, variations in oxidation states in protoplasm, is plainly of the utmost importance in decisions and for outlining treatment. There are numerous simple as well as complex processes set in motion by abnormal conditions, some of which are, however, advantageous or economic.

In the complex reactions to injurious agents, such as of inflammation and infection, *the organism needs conservation of its own protective substances.* These are obtainable through a maintenance of vascular balance, vasomotor tone, integrity of circulation in the spinal segments, activity of leucocytes and lymph-formation, and of the adrenal system.

These protective reactions are displayed beautifully in the establishment of natural or acquired immunity. In the instances of favourable pathologic reactions we have physiologic prototypes such as in modified growth and regeneration. Phagocytosis, pointed out by Metchnikoff and his followers, emerging triumphantly from the animadversions of the critic, is the source of much light.

The blood-fluid plays a most important rôle in phagocytosis, in that it influences invading bacteria so effectively that the phagocytes can more easily digest them. The production of anti-toxins and anti-bodies is thus shown to be the result of special adaptations

of vital mechanisms, whereby the balance of nutrition is maintained. Under abnormal conditions there are noticeable differences between normal and pathologic manifestations of function which thus become inefficient, imperfect, diverted from their purpose.

As there are variants in the action of purely regulatory mechanisms, so also are there degrees and individual differences in the powers of adaptation and in protective reactions. These adjust themselves in diseases and either forbid or permit continuance of function, hence of life.

It has, therefore, become clear that we are now in a different position in our search for remedies than we were before these facts became established. In the selection of the means to control processes we have long exhibited too great a tendency to be influenced in our belief by waves of extra-professional or of popular opinions. We cannot be too cautious, for example, in accepting the recommendations of manufacturing chemists, who add much to knowledge, distinctly too much, pouring out a flood of modified findings of established facts, with a new one here and there, all which may well obfuscate the most vigorous intellect. Their findings, useful in part, yet come in such an overwhelming mass that we would perhaps be better off without them. The research scholar in the laboratory, moreover, too often permits his zeal to distance discretion, to run his lines so fine as to lose sight of many important principles by the way.

It is equally unwise to bow to the clamour of reactionaries within and without our ranks. We have already learned much from, and will never cease to benefit by, empiric data. The boldness of the practising physician in putting his courage to actual bedside tests has furnished the real groundwork for practical medicine. His observations are of priceless value and could be more so if only he exhibited greater patience and accuracy in recording.

It is admitted that for the safe and effective treatment of the sick we have improved little upon various methods long ago established. In the treatment of infantile ailments a potent cause for high mortality is over-much interference. How can it be otherwise? Dr. Frank Billings in his presidential address (Amer. Med. Assoc.) estimated our knowledge of the physiologic action of drugs to be clear in only two, quinine and mercury. Dr. John H. Musser, his successor in the presidential chair, in a recent address before a Philadelphia pharmaceutical audience, declared that we do not yet know anything accurately of the action of drugs. Thus these men would obliterate even the last vestiges of our so-called "scientific therapeutics." Many other competent clinicians have spoken in the

same vein. Empiricism is therefore our sheet-anchor. It is only where clearly defined morbid conditions, positively known to be met favourably by a given remedy, are present that we are on safe ground. But how frequently are we misled by objective symptoms, often our only guide in young children. Plainly great prudence should be our rule in the use of remedies until both symptomatology and therapeutics shall have been placed upon a more solid foundation.

Will such time ever come? I firmly believe that it will, and moreover, that our own country has already contributed the foundation stone for an entire transformation of present conceptions both as to the pathogenesis of disease and its rational treatment. I refer to Sajous' work on the internal secretions and the principles of medicine (1903). Indeed, say what we like, but wherever we turn we are brought face to face with the *problems of the body's auto-protective resources*, the *vis medicatrix naturæ*. Here is our touchstone, our guide, our *credo*. We may speak of invading bacteria, but unless we know *how* they overcome, through their toxins, the body's defensive mechanisms we will never understand the pathogenesis of disease due to them; we may speak of the bactericidal properties of the blood and of its leucocytes, but unless we *know how* these bactericidal agents can be increased in the blood at will we will never be able to command their destructive action. These are precisely the principles which Sajous has given in outline in his first volume, but which are worked out in detail as regards each disease and each drug in the second, soon to appear. I am not alone in the belief that his labours will eventually place medicine on a footing at least as sound as that of surgery. His views are steadily gaining ground both in this country and in Europe; I do not fear to state my confidence that the general principles he has introduced will ultimately serve to place our country in the van of scientific nations.

The hygiene of sick infants is worthy of profound study and should be formulated on lines of exactitude and science. It is usually taught in a most haphazard fashion. The concept of each student is marred by personal taste, preference, or accident. It is only possible here to allude briefly to a few points or principles. Infants demand the maximum of quiet, a uniform temperature, the utmost cleanliness of air, simplicity of diet, freedom from irritants of all sorts, plenty of light, and the least possible disturbance.

Young children are extremely susceptible to the reverse conditions, but vary enormously in their adaptability and capacity for enduring irritants. Hence it follows that many times when we cherish the

conviction that our health-restoring measures have prevailed the sick infant has survived in spite of them, or it may be that those factors we could not control, but deplored, were really less hurtful than we feared.

For instance, let me cite a fragment of my personal experience in dispensary work at the Children's Hospital in Philadelphia, where for twenty-five years I have held clinics in the cold months. During that time I have had under my care some thousands of young children suffering from bronchial and pulmonic troubles, and others ill from diverse causes, and all presumably susceptible to the harmful effects of cold. It is difficult to recall instances of death or serious increase of the existing disorders from the induction or aggravation of respiratory complications. Yet these little ones were brought back and forth in all kinds of weather. Exposure to air, especially the cold, is viewed with greater liberality now that a more exact knowledge prevails of the value, rather than peril, of the agent. The physician has conspicuous need of an accurate knowledge of the principles of bodily hygiene to use in the work of each day. How to get it is not clear, so rarely is it taught practically or systematically. Few take advantage of such opportunities as come their way. Most of us cherish the erroneous conviction that our chance reading and the utilisation of casual opinions will suffice.

Diet is a long story. The feeding of infants is now admitted to be more important than any other agent in growth, development, and repair. This one achievement of the profession, the modern scientific modification of milk and all that appertains to improvement in milk supply and transportation, is an evidence of enlightenment beyond praise. It has reduced by one half or more the difficulties of treating infantile disease. This enlightenment still leaves much to be desired so far as it affects the community.

It is conceded by physicians that the life, growth, and maintenance of health of infants depends more largely on the quality and condition of the milk than any other one factor. It is now demonstrated beyond peradventure that *thoroughly good milk can be supplied provided it is demanded and provided people will pay for the inevitably increased cost*. In the face of all this, the public, both those of moderate and of ample means, exhibit the most astonishing and deplorable indifference, often active opposition, to a reasonable increase in price. This unfortunate attitude stands as a barrier to the best efforts of the profession in one of its most vital postulates. By this difficulty offered to scientific conviction and teaching the lives and health of a large proportion of our embryonic citizens are

yearly sacrificed. The waste of money values alone is thus incalculable.

The remedy is a constant crusade on the part of the physicians everywhere. Boards of health and inspectors of dairies are found to be capable and willing, but zeal must be supplied by the profession, one and all. Dairymen are not to blame if the consumer demands the cheapest product; they can scarcely be censured if the buyer will persist in selecting the cheapest grade of milk and is only critical of the fat, not of the bacterial or filth, content. Just here is it pertinent to record an observation which much experience has forced upon me, viz. that the pronounced advances made in the hand-feeding of infants tends to encourage neglect on the part of mothers to suckle them. Among the well-to-do classes omission of breast-feeding is increasing. Some physicians, many perhaps, encourage mothers to wean their babies without sound reason for doing so, often merely maternal selfishness or vanity. This vice is extending to the working classes. More and more women find it easy to confide their babies to day nurseries or professional caretakers, and to supplement their husband's income by work in shop, factory, or the like. Meanwhile benevolent organisations supply milk or milk mixtures at cost which thus unwittingly become great agencies in prostituting the sacredness, the wholesomeness, of the home.

Dietetic regulation is now recognised to be capable of overcoming a large group of functional disorders which, when they persist, pass into serious disease. Digestive disorders in infancy form the foundation for many infections of the gastro-intestinal tract, which in turn invite severe infections—*e. g.* tuberculosis, acute toxæmias. Nutritive defects are at the basis of neuroses and psychoses, oftentimes the sole assignable cause. Cure of those childish nervousnesses so common but little appreciated by parents, or even some physicians—fidgetiness, fear, night-terrors, insomnia, spasmodic disorders, chorea, tics, eclampsia, hysteria, neuroses, and neurasthenia—is accomplished in great part by full attention to corrective dietetics. It is wise to accept the nutritive fault as the basis of treatment till further light is shed on the problem.

Careful dietetic treatment of subacute and chronic disorders of digestion and their endless consequences cannot be over-esteemed though it is often over-estimated. However efficacious it may prove in many instances, full control over the patient cannot always be exercised for the length of time, often months or years, admittedly essential to secure full success. In a recent paper L. Emmet Holt ('*Pennsylvania Med. Gazette*,' April, 1906), makes the emphatic assertion that in

chronic digestive disturbances in children beyond the age of infancy careful dietetic treatment is the only measure which accomplishes anything permanent, admitting at the same time there is demanded an extended period of absolute supervision.

Where excessive intestinal fermentation occurs local flaccidities and atonies follow, a train of retrograde disintegration phenomena is exhibited in the structures of the viscera and those which support them. Rhythmic action, a cardinal function of the hollow viscera, becomes impaired, along with loss of peristalsis, dilation, and the whole range of the visceral ptoses. Here dietetic regulation needs to be supplemented by manual treatment and other forms of vasomotor stimulation. Vaso-constrictor derangement conditions most diseases, all soon or late, and when established there follows passive congestions, infiltrations of parenchymata of organs and their supporting structures, relaxation, dilatation, ptoses, functional alteration, and disintegration. The cell-bodies in the segmental centres controlling the visceromotor activities thereby become starved, and upon their repair depends restoration of function.

A prompt and efficacious means of achieving this is by employing gentle alternating pressure on the tissues of the back adjacent to the spine, along with regulation of diet and possibly some drugs enhancing adrenal action.

A most material point in dietetics is to secure full mastication and insalivation, though this is too often overlooked. Children, many of them, bolt their food; nurses and parents are often careless or hurried, and regard their duty done in supplying enough, often too rapidly and too much. This fault causes almost as many digestive troubles as unsuitable food.*

A practical part of all hygiene or rational regulation is exactitude and minutia in all the acts, duties, and pleasures of the day. These directions should be on broad lines, dominantly sketched. For a sick child we must have always plenty of fresh air, cool, but if too cold it tends to weaken the already impaired resistance in the lungs.

The true purpose of the therapist is not only to restore the balance of health in the individual, but to reach much farther and aim at perfection. His resources are, first and last, dependent upon the intrinsic resources of the organism; his prerogative is not, or should not be, limited to restoration, but includes always efforts at develop-

* The scientific principles which underlie the milk feeding of infants have received much clarification of late at the hands of Dr. Godfrey A. Pisek, 'New York Med. Rec.,' September the 9th, 1905, Thos. S. Southworth, 'New York Med. Rec.,' January the 13th, 1906, L. E. Holt, 'Pennsylvania Med. Journal,' April, 1906, etc.

ment and amplification of the auto-protective forces. This can be carried so far that hereditary and inherited faults can often be eliminated in two or three generations. These auto-protective forces, inherent powers for regulation, adjustment, and maintenance of vital actions, should be studied from various aspects and our remedies always directed to repair of the fundamental mechanisms.

At the head of all forms of therapy stands preventive treatment. By this is not meant Board of Health measures. It would be absurd to include the negative as a part of a positive proposition except for the fact that prevention is largely partial and relative, hence must be reckoned as an integral part of systematic therapy. The largest concrete results within the possibilities of medical art lie in the early recognition of abnormal conditions and nullifying these wholly or in part. We all have a more or less definite notion of the scope of preventive measures and hygiene, especially as applied to tuberculosis, rickets, scurvy, lymphatism, etc. In respect to scoliosis, for instance, as Percacini has pointed out ('Gaz. Ospedali Cliniche,' February the 11th, 1906) this is a most preventable state, yet little correction is attempted in its incipience. Many derangements and diseases of adults exhibit their beginnings in childhood—*e. g.* convulsions; hence arise epilepsies, palsies, contractures, deformities, etc.; bronchial attacks and their recurrences, foreshadowing asthma; likewise the milder neuroses and psychoses lead to endless puzzling disorders, so also many derangements of unstable cellular adjustments of childhood. All this, as I have repeatedly pointed out, is entirely within the province of the watchful physician. The real difficulty is less his omission of accurate observation and corrective measures than of failure to secure the co-operation of the family. To know, one must have opportunity to observe. The duty of parents is to invite the attention of the physician to trivial seeming disorders. To do this is the clearest economy of money, suffering, and future disabilities.

Among the measures recognised as forcible in limiting the spread of communicable diseases is the biologic principle of acquired immunity. We cannot make much practical use of this, but it is a great comfort to know that, since such diseases must prevail until they are stamped out, there are some mitigating circumstances connected with their prevalence.

Evidence exists to show that the processes of disease are accompanied by a conservative action tending toward repair—a reinforcement of the autoprotective mechanisms. E. W. Watson has enunciated

the proposition ('Monthly Cyclopedia,' March, 1906) that by repeated exposures to infection there comes an acquired immunity which in the aggregate and under a certain large proportion of circumstances and in the long run results beneficently. He says: "There is also the way called 'the survival of the fittest,' and for it we substitute the survival of the unfit. There is also the way we might call immunity through exposure, and we substitute for it immunity by seclusion, quarantine, and segregation; but for immunity through exposure there is still something to be said.

"Immunity by exposure is based on a great underlying law which extends to things moral as well as things microbic—to the action of the elements that war against us as well as to the bacteria that so silently bear death influences. Do we shun cold and fear draughts and exposure? How are we best inured but by the repeated short shocks of cold bathing that rouse up resistance?

"So, while no one could urge an entire abandonment of modern methods, it is perhaps as well, once in a while, to pause and try to realise that, apart from them, there is ever working a force that makes for health and, though slow, can through hard-fought battles and many slain, bring us victory."

Sir Frederick Treves (address Edinburgh Philosophical Institute, 1905) asserts his conviction, under the title "The Beneficence of Disease," that the end results of disease constitute a protective influence in pathologic processes, declaring "if it were not for disease the whole human race would soon become extinct."

In an editorial in 'American Medicine,' December the 30th, 1905, comments are made on the decreasing virulence of infectious diseases, showing that there is some evidence to prove that these may eventually become harmless through the cure and survival of immune hosts. As old diseases become modified, possibly new ones may arise.

G. Archdall Reid years ago called attention to this process in 'The Present Evolution of Man.' Theobald Smith ('American Medicine,' October the 22nd, 1904) showed that a biologic adjustment has probably been caused in some instances by the survival of only those bacteria which are able to live in the host without the production of free toxins. Some of these remain confined to the surface of skin or mucous membranes, and only occasionally induce generalised disease, merely local disturbances.

These and similar opinions, emanating from careful thinkers, are glimmerings of elemental truths which we may hope ultimately to understand and apply. To achieve this end we must employ increasingly philosophic methods fortified by comprehensive view-

points, attainable only by the formulation of essential principles, and adapting them to our clinical use. Nevertheless while contemplating these significant generalisations, our duty is to limit to the uttermost the spread of transmissible diseases. This is possible in proportion as (1) the general practitioner is vigilant and dominant, (2) the co-operation of the family and (3) the co-operation of the municipality is secured. Medical inspection of schools is accomplishing a silent but tremendous victory. This care is the more needed in view of the disastrous secondary effects of infections, and nothing can condone omission of all reasonable precaution in isolation of those sick of transmissible disease.

Serum-therapy is still in a position of experimentation. In the treatment of diphtheria the use of anti-toxin has become established as a pronounced success. In respect to other diseases there is only moderate encouragement (E. W. Goodall, 'Brit. Med. Journ.,' October the 8th, 1904); with respect to plague, typhoid fever, dysentery, and streptococcal infections, there is sufficient evidence of benefit noted to stimulate further endeavour. Something is probably lacking in the form of the anti-toxin which may be yet supplied and justify a wider use and confidence. The intravenous administration is found in some instances to be more efficacious (C. J. Martin, Director Lister Institute); it saves time—eight hours (Behring).

These conclusions were also reached from a careful analysis of all the recorded facts by Sajous in his book (*op. cit.*) published 1903.

The laws of growth as formulated by Theo. von Escherich are: (1) The smaller or younger the organism, the greater the intensity of the metabolic processes calculated for the body measurements. This continually diminishes throughout the entire course of life. (2) The functional development of each individual organ, measured by the absolute degree of ability for work, takes during childhood a rising course, different for each organ. (3) The growth of individual organs occurs, not simultaneously, but with varying intensity by leaps. The order is influenced by the greater or less importance of the developing organs for the preservation or protection of infantile life.

As a most valuable auxiliary measure, capable of modifying many acute conditions to a marked and emphatic degree, and protracted diseases even more so, let me mention manual treatment directed to the regulation of the vasomotor action. In a former paper (BRITISH JOURNAL OF CHILDREN'S DISEASES, January, 1905) I have given an outline of the part which the vasomotor nerves play in regulation of the viscera, etc., and how these may be controlled by alternating or con-

tinned pressure, inducing reflex constriction or dilation in the blood-vessels supplying the viscera, exerted on the erector spinæ muscles which are supplied by the posterior primary divisions of the spinal cord. The subject has been fully systematised by John P. Arnold ('New York Med. News,' March the 18th, 1905). A long and careful series of clinical observations have convinced me that this apparently simple auxiliary measure, used with a fair working knowledge of the distribution of the vasomotor mechanisms, is forceful in accomplishing results which are beyond the reach of drugs and various rational so-called "physiologic" therapeutics. In this way I am able to get results far beyond my earlier expectations, and as I acquire skill and experience confidence is increased in my ability to modify most acute conditions, and particularly hastening resolution, repair, functional balance in subacute and chronic states.

The time occupied by this manipulation of the tissues of the back is seldom more than a few minutes, and in acute conditions gentle continued pressure should be exerted once or twice daily, in others alternating pressures a little longer and more generally applied, and from three to four times a week will suffice. As an example of what can be thus accomplished I make the assertion with confidence that I have apparently cured over a dozen cases of bronchial asthma in children who had suffered since babyhood or early childhood. Many persistent digestive, pulmonary, and blood derangements have yielded surprisingly to the measure in my hands when all the ordinary methods had accomplished little or nothing.

THE EFFECT OF ALCOHOLIC DEXTRINS ON SOME CASES OF MARASMUS.

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FEW physicians will question the statement that infantile atrophy, or marasmus, that symptom of multiform pathological lesions, is one of the most difficult and unsatisfactory conditions with which we have to deal. Disappointment meets one day after day in disheartening recurrence. Despite our best efforts, these cases waste away rapidly and die from marasmus, which we are frequently unable to arrest.

I do not here allude to such obvious causes of wasting as tuberculosis in its numerous varieties, especially those grouped as abdo-

minal and pelvic tuberculosis, nor to such causes as congenital syphilis, nor the stunted growth due to respiratory obstructions from adenoids and enlarged tonsils. Such causes of wasting are easily eliminated.

Under the term "marasmus" I rather include that large class of food cases so commonly resulting from early administration of improper food which induces disorganisation and morbid secretions of the digestive glands; cases of immaturity, and I regret to say sometimes criminal starvation; and some of that terrible group of mechanical obstructions which block the alimentary canal. Among the varied lesions which are embraced by this last group will be found congenital hypertrophy of the pylorus or pyloric stenosis, pyloric spasm (in my experience very different conditions), congenital malformation of the duodenum, stenosis of the œsophagus, and enlarged retropharyngeal glands. Some of these conditions are, however, irremediable save by operation.

The suggestion I especially wish to make has reference to that large group of food cases, pyloric spasm, and some cases of pyloric hypertrophy in infants.

It is highly useful in some of those cases which defy all our efforts and most approved methods of feeding, where cow's milk has failed and has been abandoned even though skilfully modified, peptonised, or condensed; where breast-feeding has likewise failed with mother or wet nurse; where asses' milk has been abandoned as insufficient to arrest the downward course, where patent foods have possibly aggravated matters, and where special marasmus foods, such as bread-jelly, wine whey, eggs, meat-juice, and brandy, have alike disappointed us. The child is now sinking, and our resources are nearly exhausted. We have given a bad prognosis, and are taking a hopeless view of the case. At this stage the administration of XXX Dublin stout, with, after a time, the addition of proteids and fat, will often save life. Such cases are the worst ones which present themselves. That these alcoholic dextrins may be given at such critical times with perfect safety and often benefit, even to infants of such tender age, is exemplified by the following cases. When the chemical composition of these malt liquors is thoroughly understood no alarm need be raised at the suggestion, extraordinary though it may appear.

The typical cases in which this method has been especially serviceable are perhaps best exemplified by a few instances. The first case was as follows:

CASE 1.—E. T—, a little girl aged 10 weeks, was when brought

(July the 30th, 1902) constantly vomiting, much wasted, cyanosed, cold, and feeble. Had lately had diarrhœa, and now the motions were painful. Fontanelle very large. No food was retained. She had never been breast-fed, but at birth was given barley-water $1\frac{1}{2}$ oz., milk $1\frac{1}{2}$ oz., cream 1 drachm. This gave diarrhœa and vomiting.

Under careful advice this was changed to milk $2\frac{1}{4}$ oz., whey $2\frac{1}{4}$ oz., cream 30 drops, sugar of milk $\frac{1}{2}$ drachm. Still the vomiting persisted.

Then, top milk 1 part, water 1 part, lime-water $\frac{1}{2}$ part, also proved a failure, when milk 1 part, barley-water $1\frac{1}{2}$ parts was given, which produced more diarrhœa, the vomiting persisting as before.

Subsequently peptonised milk 1 part, water 1 part, was tried. Then peptonised milk 1 part, whey 1 part, water 1 part, was given, which agreed for a time, but vomiting still persisted.

For many weeks various mixtures of top milk, whey, and cream were tried, but weight was gradually lost and vomiting continued. Ordinary humanised milk of the standard proportions would not agree.

Condensed milk failed to remain in the stomach. The cattle were changed and excellent milk procured; still an intolerance of cow's milk was evinced.

The vomiting was peculiar. Not only did the food come up, but in the intervals a condition of *water-sickness*, as I can best describe it, was present—a state of chronic vomiting, when mouthfuls of pure water or mucus were constantly discharged, quite clear and not tinged with food or other matter. This was accompanied by a blue, livid look, dusky hue of the face, weakness of the heart, stationary or declining weight, and low temperature. At this stage the child was put on the treatment I am describing, viz. Guinness XXX porter, a mixture of arsenic and pepsin, and some malted food. The child was now four months old. Wonderful improvement immediately commenced and was maintained. Weight went up, vomiting ceased, and the child grew apace. The Guinness stout was given three times a day in quantities from a teaspoonful up to a tablespoonful as much as 2 oz. daily. The arsenic and pepsin were prescribed as follows:

R	Liquoris arsenici hydrochlorici.	.	.	m $\frac{1}{2}$
	Acidi hydrochlorici	.	.	m $\frac{3}{4}$
	Glycerinæ pepsinæ	.	.	m7
	Syrupi	.	.	m7
	Aquæ	.	.	ad. 5j

Ter in die.

and a little malted food incorporated in the bottle of milk mixture. After a time a return to milk and cream mixtures was accomplished and the stout omitted.

CASE 2.—H. R—, a boy, of healthy parents, was born properly at full term by normal labour, December the 12th, 1903. He was a splendid child of 9 lb. weight, and was fed artificially from birth, never having been breast-fed. His food had been apparently carefully prescribed by the family doctor. He was first given milk 1 part, water 1 part. This was not satisfactory and was changed to milk 1 part, barley-water 1 part. After some time this also disagreed and was again changed to peptonised milk 1 part, water 1 part.

In like turn this became unsuitable and, as the child was losing weight and wasting, milk was temporarily abandoned and Mellin's food 2 parts, water 11 parts, added to the bottle. This, after an interval, also proved a failure, and weight still went gradually down. Neave's food was now given in milk 1 part to 5 parts three times a day and still the weight declined.

At this time the child was ten weeks old, but weighed only 7 lb., having lost 2 lb. since birth, and suffered from frequent attacks of pain and vomiting.

His condition now, when he first came under my observation (February the 16th, 1904), was one of extreme wasting—a typical case of atrophy or marasmus. The skin was hanging in folds on his limbs, he had the well-known pinched, monkey-like face with the wrinkled forehead of age and suffering, his bones were dwindled and small, evincing no growth in the frame or muscles. The skull was ill developed, the fontanelle large, depressed, and visible, and the cranial bones still loose.

He was blue and cold, the hands, feet, nails, and face being cyanosed. He was constantly sucking his hands as if endeavouring to swallow them (a frequent sign of starvation), and was fretful, irritable, and in misery.

As far as physical examination could detect, all the organs were healthy, the lungs, glands, and abdominal viscera, spleen, liver, and intestines all being normal, the heart alone evincing trouble, with a systolic bruit over the body of the ventricle. There was at this time no vomiting or diarrhœa or offensive stools, and the month was clean and free from fungi.

Another effort was made to correctly modify the cow's milk, and the following mixture was ordered: Milk, 3 oz.; cream, 1 oz.; water, 3 oz.; lime-water, 1 oz.; milk sugar; in $2\frac{1}{2}$ -oz. to 3-oz. feeds. This caused no irritation, the child only vomiting twice in ten days. The weight, however, remained stationary, the fontanelle still depressed, the sutures visible, and the countenance wizened, old, and monkey-like. Butter was now rubbed into the skin, and beef-juice

given three times a day, but in ten days he had gone up only 1 oz.—to 7 lb. 1 oz.

On March the 8th he was vomiting again, with cold extremities; mouth acid; bowels three daily, and green.

March the 15th.—Weight stationary. Child having a milky-blue, anæmic complexion. The milk was changed to another dairy of most excellent shorthorn cattle giving milk of admirable quality.

March the 19th.—Mouth acid. Fontanelle 3 in. \times 3 in. Bones loose. Child not growing, head remaining foetal in condition, and no signs of improvement.

March the 23rd.—He was given malted milk in alternate feeds.

On March the 25th his condition was still more serious, the child was falling off and losing weight and vomiting every day. Milk was now stopped and a wet nurse sought for, and he was ordered meantime malted milk, 1 in 8 water, 1 part; egg-albumin in wine whey, 1 part; with chicken tea and beef-juce in addition. The child never vomited this and took it well. His weight went up with this, which was the first food which in the least advanced his nutrition. Before a satisfactory trial of this was made the wet nurse arrived, on March the 29th, and took over the child, who weighed now 8 lb. 1 oz. in his sixteenth week. She was a healthy young woman, with a healthy child aged 8 weeks.

March the 31st.—The child lost 4 oz. in the first twenty-four hours and was given again the malted milk in egg-wine whey, in addition to the nurse.

April the 1st.—Weight going down.

April the 2nd.—Weight going down.

April the 3rd.—Weight to-day 7 lb. $3\frac{1}{2}$ oz., child having lost $13\frac{1}{2}$ oz. in the first four days on wet nurse. The child's condition now was very alarming. He was four months old, wasted to the most extreme degree, cold, collapsed, blanched, and very feeble. All cow's milk had failed, the wet nurse was also a failure, and asses' milk was considered the next alternative. I, however, decided to keep on the wet nurse and give porter in addition.

The child was now ordered Guinness' XXX stout $\frac{1}{2}$ oz., hot water $\frac{1}{2}$ oz., sifted sugar, every six hours through the bottle, and the wet nurse regularly every two hours. The daily increase in weight on this treatment will be seen in the appended chart. It immediately rose in an extraordinary manner, and in the first six days he gained $5\frac{1}{2}$ oz.

The porter was now given every five hours, with beef-juce and cream added, as follows, and the same wet nurse regularly all the

time: Treble XXX stout (Guinness) $\frac{1}{2}$ oz., hot water $\frac{1}{2}$ oz., beef-juice 2 dr., cream $\frac{1}{2}$ dr., sugar; and in this week, the second on the porter, he gained 11 oz.

On April the 20th, seventeen days after the commencement of the stout, the note is as follows:

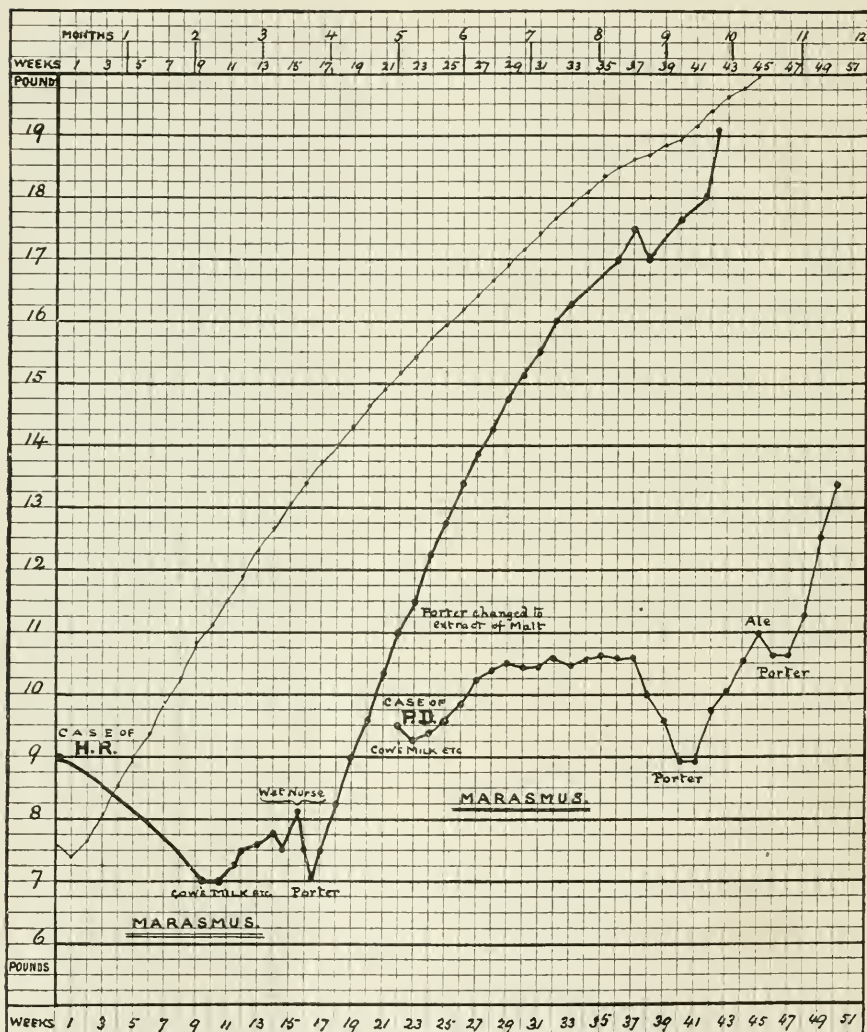
"April the 20th.—Weight 8 lb. 8 oz., bowels two each day, formed, dark, but natural. Never vomited since porter treatment commenced. Not cross or peevish. Takes porter splendidly. Fine tinge of colour in face, cheeks showing it well, and child has good red lips. Child is essentially happy, smooth, and full in appearance compared with condition before porter treatment commenced. Growing rapidly. Much stronger, and kicks and laughs freely. Heart-beat 120 to the minute, regular and full ventricular strokes. Child to-day very bright and hopeful-looking. A very remarkable change from condition a fortnight ago. Takes breast very well and is now more satisfied with it. Not so ravenous as before. Absolutely no symptoms of illness to-day beyond diminutive size for his age. Head well shaped. Fontanelle very large—5 in. \times 5 in. Post-fontanelle patent; bones still loose. No other signs of rickets as yet; no beading of ribs; no sweating. Ears and eyes normal; no discharges. Glands not palpable. Abdomen soft, full, but not distended. No pains; no tenderness. Spleen not palpable. Liver normal. Intestines feel normal. No nodules, no bands, or fibrous cords felt. Heart normal, lungs healthy, spine normal. Neck showing much more fulness and growth. Mouth clean and healthy, tongue showing slight fur far back. Child is not nervous and sleeps well. Out twice daily and feeding splendidly. Porter, mixed as above, given every five hours, and wet nurse regularly all the time."

The stout was now given every four hours, and on April the 27th (a week later) the weight was 9 lb. 6 oz., showing a gain of no less than 14 oz. The note on this day was as follows:

"April the 27th, 6 p.m.—Grew 2 oz. during the day! Child has grown brown and well-coloured. Absolutely fat and well-nourished. All organs perfectly healthy and sound. To-day is a perfectly healthy child, well-nourished but small. Skin smooth and no folds now. Face particularly happy and full, round, and fat. Laughs and plays and never cries. Tongue clean and mouth healthy. A little beading of the ribs just palpable. I would not recognise the child as the same individual; a perfectly wonderful change has taken place. Goes out daily 11–1 and 2–4 (four hours). Taking (1) wet nurse regularly every two hours, (2) porter, beef-juice, and cream every four hours, likes it, and is perfectly happy afterwards till the

next feed. Absolutely no symptoms or signs of illness beyond weight for age being low."

CHART I.



On May the 7th, thirty-five days from the commencement of the porter treatment, the condition was as follows:

"The child is perfectly well; gained 12 oz. during the week. Happy, bright, and strong, and has a full 'double chin'! Mouth clean. Bowels normal, action twice daily. Never cross or irritable.

In every detail the most careful examination fails to discover anything abnormal."

The stout was now replaced by a liquid extract of malt incorporated with beef-juice and cream.

The weekly weight records are seen on the accompanying chart.

CASE 3.—P. D—, a boy aged 4 months, was admitted into the Royal City of Dublin Hospital October the 10th, 1904, for operation on hare-lip and cleft palate, under Mr. Moore. He was a poorly-nourished and marasmic child, having been fed on "boiled flour and milk" since birth, and prior to operation efforts were successfully made to advance his nutrition by care and good feeding. He retained food fairly well but had considerable diarrhœa. The operation was performed on February the 23rd, 1905, but he immediately contracted broncho-pneumonia and severe diarrhœa returned. For seven succeeding days after the operation his motions numbered 10, 2, 4, 19, 7, 5, 5, and but once afterwards fell below 3; repeatedly they numbered 5, 5, 7, 5, 2, 3, 5, 6, 6, 6, 4, and 5 in the six hours. The child wasted rapidly and became wretched in the extreme. The chronic diarrhœa had reduced him to the most miserable condition. He was a living skeleton, with the typical face of marasmus. Hollow, sunken eyes and pinched, pale, "pegtop" face; Jadelot's lines encircled his mouth. The cranial bones remained ill-developed, fontanelle measuring 5 in. \times 4 in. The skin hung in folds from his wasted frame. His temperature varied from 98° to 103° F. with no regularity.

By March the 25th the diarrhœa, which still persisted, had further wasted him. His condition now became alarming. He was cold and collapsed. His pulse, perfectly imperceptible, could not be discovered. He quickly passed into a state of stupor, remained quite pulseless for some days, and exhibited the well-known condition of the hydrocephaloid state. Rectal temperature 95° F. He was practically comatose, perfectly blanched, and several times was thought to be dying. Fed with difficulty at all times, owing to his deformity; he, however, retained his food. His milk during this time was as follows, a strength of 20 parts milk to 15 parts water: milk 16 oz., cream 4 oz., water 10 oz., lime-water 5 oz., sugar 1½ oz., of which he took 3-oz. feeds. Also he was having brandy in 1-drachm doses every four hours; he was now ordered in addition porter and beef-juice as follows:

Guinness' treble XXX stout 1 oz., hot water ½ oz., beef-juice 2 dr., sugar ½ dr., every four hours; and a powder of hydrargyrum c̄ cretá gr. ½, resorcin gr. 1, sodium bicarbonate gr. 2, bismuth car-

bonate gr. 4, pulvis cretæ aromatica gr. 2, three times daily. He was given daily a bath at 90° F., wrapped in cotton-wool, and kept warm.

March the 31st.—Child stronger, and revived from state of stupor. Feeding well. Retaining all food. Has never vomited stout or milk. Diarrhœa less, now only 3 motions daily. Fontanelle still depressed, 5 in. × 3 in. Frame wasted to an extreme degree, skin hanging in folds from legs and arms. No fat or subcutaneous tissue remaining, muscles also wasted. Reflexes normal and active. Eyes brighter, takes notice of people and objects in the ward now. Glands scarcely palpable. Abdomen full and tumid. Liver not felt, spleen not felt. No masses or bands felt. Swollen condition of abdomen due to intestinal flatus. Heart stronger, regular, and sounds well heard. Lungs clearer, but some rough breathing remaining anteriorly. Mouth clean. Tongue peeling and sore. No fungi, no sour smell. The diarrhœa is much less.

April the 7th.—Child improved. Temperature better. Skin warm, smooth, and soft, less wrinkled. Head not growing. Anterior fontanelle 5 in. × 4 in.; posterior palpable still. No bossing. Frame still wasted to extreme degree, but child decidedly more natural; marked benefit in child's condition. Reflexes, plantars active. No ankle clonus. Knee-jerks present and active both sides, abdominal not present. Child looks around normally and notices objects and people in the ward, laughs a good deal now, and is sometimes quite playful. Glands palpable in neck, axillæ, and groins. No thyroid or thymus felt. Abdomen full, but nothing abnormal found. Intestines full and fairly distended; child quiet and placid during examination, no masses, glands, or bands discovered. Spleen not felt. Heart normal. Lungs still evince considerable crackling crepitation posteriorly. Mouth perfectly clean, one upper incisor tooth. Wasting extreme; to-day child is 10½ months old and only scales 9 lb.

April the 27th.—Child is placid, smooth, and happy. Weight now 10 lb. 8 oz. Laughs, and is perfectly content. Takes stout much better if milk is added. Temperature normal, bowels relieved twice daily; never cries now. Head well shaped. Fontanelle full and even, 2 in. × 3 in., growing well, and has closed in since last examined in a wonderful manner. No bossing. No craniotabes. Frame less wrinkled, smooth. Ribs well covered, and not now visible. Kicks legs about freely. Very thin still, but no sign of acute marasmus now. Reflexes normal and active. Knee-jerks very brisk, and much improved. Eyes normal, looks about and takes notice. Glands palpable in axillæ and groins, less easily observed in neck. Abdomen full, no masses or bands felt. Liver easily felt. Spleen not

felt. Heart normal, smooth and regular action, no murmur. Pulse easily felt now, rate 120 to the minute. Mouth clean and healthy.

His milk was now strengthened to milk 28 oz., cream 4 oz., water 2 oz., lime-water 10 oz., sugar 2 oz., and the porter increased and mixed with milk as follows: treble XXX stout 2 oz., hot water 1 oz., rich top milk $\frac{1}{2}$ to 1 oz., beef-juce $\frac{1}{2}$ oz., sugar 1 dr., every four hours. He takes this well, has never vomited any. The stout has never at any time made him drowsy or proved intoxicating. The child's nervous system especially is more placid, and digestion and nutrition appear quite satisfactory. He goes out daily in fine weather. The stout was now replaced by extract of malt.

The administration of porter in the collapsing hours of these desperate cases has been often very satisfactory. It must not be imagined, and I do not suggest for a moment, that every case of atrophy should be treated by this method. The original feeding is sometimes so grossly wrong that response to proper food is prompt and the case progresses favourably. But there are cases of atrophy, as in the foregoing instances, where modified milk and cream mixtures disagree, and where peptonised milk, percentage feeding, additional proteids, malted foods, specially selected cattle, "top milk" with various diluents, asses' milk, and a wet nurse, either alone or along with mixed feeding, all fail to nourish the child. Milk now has to be abandoned and other substitutes found, and after much disappointment failure still follows our efforts, and the child, wasted to a skeleton, dies of marasmus. These are the cases, and these alone, to which I refer. It is curious that these cases are very frequently found in wealthy families, possibly because here alone prolonged remedial efforts are sustained, whereas in poorer classes a downward course is inevitable. Such scrupulous care has been taken with some of these children from birth, and the feeding has been conducted on such good lines, that in some cases I have been led to believe in a personal idiosyncrasy in their inability to assimilate milk.

One of the original and oldest of these special foods to take the place of milk was used many years ago by the late Dr. Fleetwood Churchill, of this city, and was since revived by Dr. Cheadle—*e. g.* bread-jelly. With a little care and a further boiling and second straining, in addition to Dr. Churchill's method, a nice jelly can be made which is one of the most harmless of the starchy preparations, and, when prescribed along with raw meat-juice and cream, fulfils many of the indications. But this contains abundant starch and is liable to ferment in the child's stomach and intestines. It has been

often pointed out that these substitutes for milk must contain the elements of nourishing food, carbohydrates, proteid, and fat. The first is our chief difficulty, for it is necessary to obtain a thoroughly dextrinised form.

Now, the XXX stout is in many of these cases the kind of material we are looking for. In addition to carbohydrate in the most soluble forms, it contains a small quantity of alcohol, which is often indicated. The alcohol is, however, much less in quantity than is frequently given to children in the form of brandy or pharmacopœial tinctures.

Stout may be roughly described as an extract of malt containing abundant carbohydrates in the form of dextrins, no starch, no sugar, and a small quantity of alcohol averaging about 5 per cent.

All the serious cases of infantile atrophy where collapse is great, the surface and extremities cold, and the temperature low, are benefited by alcohol, and it is here combined with the carbohydrate in a ready form for administration. Proteid can be easily supplied by beef-juice, and fat by cream or yolk of egg. It is not unpleasant; the child takes it well from a bottle; it mixes with milk, not only without harm, but also aids its digestion; while if the child is at the breast, as in one of the foregoing cases, the porter in no way disagrees.

I was first led to try this preparation some years since at the suggestion of Dr. W. R. Evans, of this city, and I understand it was used for marasmic infants by his father in his practice in Dublin more than forty years ago.

When diluted and prepared as above it is given three times a day at least, in doses from a drachm to an ounce or more as may be required.

Through the kindness of Mr. Forbes Watson, chief of Messrs. Guinness' laboratories in Dublin, I am enabled to append the following information regarding the composition and alcoholic strength of the various kinds of porter:

“DEAR SIR,—

“There are four different kinds of stout brewed at St. James's Gate, namely porter, extra stout, extra stout foreign, and export or invalid stout. The difference between these stouts lies mainly in the strength of the malt infusion and in the amount of hops used.

“The first step in the manufacture of these beverages is the preparation of hopped wort of different gravities. Wort consists of the infusion of malt, which is boiled with hops for a considerable time. It is a thoroughly sterilised liquid when prepared, and

contains in solution no alcohol but maltose, dextrin, and compounds of these, together with the extractive matter of hops, phosphate of potassium, and nitrogenous substances, etc. It contains no fat and no unconverted starch. The quantity of solid matter contained in the worts for the different kinds of stout enumerated above are as follows :

Porter	.	.	.	.	15 per cent. by volume.
Extra stout	.	.	.	.	19 " "
Extra stout foreign	.	.	.	.	19 " "
Export or invalid stout	.	.	.	.	20 " "

"The extra stout foreign contains more hops than the extra stout, and is subjected to a different treatment in the brewery. When sent out it also contains more acid than the extra stout.

"The next step in the manufacture is the fermentation of the saccharine wort with yeast. During the fermentation the free sugar is converted into almost equal weights of carbonic acid gas and alcohol. The amount of the latter, and consequently the amount of starch products left unattacked, varies with the length to which the fermentation is carried.

"The following average figures given below will show the amounts of solid matter and of alcohol contained in the stout manufactured in St. James's Gate when sent out from the brewery :

	Alcohol per cent. by weight.	Alcohol per cent. by volume.	Solids per cent. by volume.
S.S. (single stout or porter)	4.5	5.8	6.2
D.S. (double or extra stout, XX)	5.4	6.9	8.1
D.S.F. (double stout foreign)	5.6	7.3	7.4
D.S.E. (double stout export, invalid stout, or XXX)	5.6	7.3	8.8

"During storage in cask or bottle, however, a further fermentation takes place, with the result that the percentage of alcohol becomes slightly higher and the percentages of solid matter correspondingly less, but the differences caused by this are not sufficiently great to alter the composition very materially.

"I subjoin a note of the average amounts of potassium phosphate and combined *nitrogen* in the different stouts :

	Potassium phosphate.	Combined <i>nitrogen</i> .
S.S.	20 per cent. by volume	12 per cent. by volume
D.S.	25 " "	15 " "
D.S.E.	26 " "	

"Yours faithfully,

"A. FORBES WATSON.

“P.S.—It may be of importance for you to know that Guinness’ stout contains only minute quantities of *calcium* salts, about ‘006 per cent. as CaO.—A. F. W.”

Approximately we may say that 1 oz. of double stout is equivalent in alcoholic value to 1 dr. of brandy, and a marasmic infant can be given with the greatest safety half an ounce every fourth hour.

I generally order Guinness’ XXX stout $\frac{1}{2}$ oz., hot water $\frac{1}{2}$ oz., cream $\frac{1}{2}$ to 1 dr., fresh beef-juice 2 to 3 dr., sugar, every four hours.

No vomiting, hiccough, flatulence, or diarrhœa has been observed. In no case did it intoxicate the child or make him drowsy, but he took his feeds with enjoyment and was satisfied afterwards.

Of course, cases of organic obstruction are not alluded to here. After a time extract of malt is substituted for the stout, and the child gets on to milk again.

The value of hop wort.—In cases where alcohol is contra-indicated or not required hop wort, which is unfermented stout, is deserving of trial. It is a thick, sweet, brown liquid, containing all the ingredients of stout, except that sugar replaces the alcohol. It could, perhaps, be obtained from breweries, but in the collapsed states of sinking marasmus the alcohol is usually needed.

I have no experience of the effect of the various ales on marasmus. In the case of P. D—, cited above, one of them was temporarily substituted for the stout, but, as shown in the chart, the weight declined immediately, no other change having been made.

HYPER-LACTATION.

By A. DINGWALL-FORDYCE, M.D.Edin., F.R.C.P.Edin.

*Physician for Diseases of Children, New Town Dispensary, Edinburgh ;
Medical Registrar, Royal Infirmary, Edinburgh.*

LACTATION, the coping-stone of motherhood, is a function frequently impossible, frequently neglected, and also frequently exercised to excess.

In the higher grades of society the latter condition is practically unknown, but investigations among persons of the working class serve to show the very considerable extent to which this regrettable practice is indulged in. The normal duration of lactation, it may be contended, is a variable period dependent on several factors, and consequently any definition of what composes hyper-lactation must be a purely arbitrary one. Undoubtedly this is so, and in dealing

with such a subject it is quite impossible to wholly eliminate a margin of error, although, from the definition I have made, it seems to me that this margin is narrowed to its extremest limits.

As hyper-lactation I have considered those cases in which maternal nursing, wholly or partially, has been indulged in for longer than twelve months after the birth of the infant. This limit undoubtedly is, on many occasions, successfully overstepped, and I am far from saying that a strong, healthy mother is doing wrong to nurse a weakly infant after twelve months, but I do say that the proportion of cases in the class of which I am speaking where this procedure is advisable, or even justifiable, is infinitesimally small, and that grave dangers are incurred by its adoption both for mother and children. In the great majority of cases the condition is a vicious habit bred of the belief that lactation insures the avoidance of pregnancy, and it is indulged in solely as a means to avoid future financial burdens. The infant frequently has never been entirely on the breast at all, and is kept on month after month, partly from economy and partly as a means of draining the maternal breasts, the while it indulges in many varieties of unsuitable food.

In determining the frequency of the practice I have noted the cases of 645 children. Of these, 226 (35 per cent.) were bottle-fed or on the breast for less than six months, 280 (43 per cent.) were breast-fed wholly or partially for six to twelve months, and 139 (22 per cent.) were cases of hyper-lactation.

Hyper-lactation accordingly is a common procedure, and the dangers which I wish to draw attention to, as resulting from it, are threefold, namely, those affecting (*a*) the mother, (*b*) the suckling, (*c*) later children.

As regards the mother, even partial breast-nursing for longer than twelve months can be regarded in no other light than as a severe physical strain, more especially when, as in most of these cases, the general surroundings are those found in the none too salubrious poorer quarters of a large city, and when the available nourishment is too often poor and unsuitable in quality and scanty in quantity. In addition, there is the constant possibility of a supervening pregnancy, a condition necessarily acting as a double strain. In a previous paper (the 'Lancet,' January the 27th, 1906) I have shown that the overlapping of pregnancy and lactation occurs in 24 per cent. of all mothers in this class, and consequently the condition is no hypothetical possibility, and may naturally exist for some time without being suspected. Only too often, in such cases, it is found that on the birth of this infant the mother is quite unable to satis-

factorily suckle for any length of time, and even when capable of doing so the value of her milk is, in many cases, unquestionably diminished.

In many cases the suckling thrives excellently, and no unsatisfactory effects whatever result, in all of these cases, however, varied supplementary nourishment being given in addition. Maternal milk during the second year of lactation admittedly is insufficient as the sole food of a child, and those children whose nourishment at this period depends largely on it are found to develop various symptoms of weakness and debility. Not only so, but the mind of the mother is apt to be lulled to a sense of security as regards the welfare of her child, and a virtuous knowledge of her self-sacrificing devotion to it leads her to consider the nature of any subsidiary nourishment entirely a matter of secondary importance.

Where pregnancy supervenes the fœtus conceived is apt to suffer, and, in addition, a maleficent influence is exercised over the prospects of later children in the family. Elsewhere ('British Medical Journal,' April the 28th, 1906) I have shown that the risks introduced into their lives are those incidental to diminished ability on the part of the mother to suckle and also to a diminished value of her milk. From every point of view the practice of prolonged lactation is eminently unsatisfactory, the risks are real, and the compensating advantages are conspicuous by their absence.

TWO CASES OF CONGENITAL DISEASE OF THE LIVER.

By ALFRED W. SIKES, M.D., D.Sc., F.R.C.S., M.R.C.P.

IN the following some details are given of two cases of disease of the liver associated with abnormalities of development. Both cases were stillborn children; one was sent down to the pathological laboratory at Queen Charlotte's Hospital from the wards and the other was obtained from a district case attended from the hospital. I do not know the history of the parents in either case.

CASE 1.—The child was apparently full time, and had tried to breathe, but when the lungs were examined they contained no air.

There was a hole in the occipital region of the skull and through this an œdematous mass protruded; the opening was about $\frac{3}{4}$ inch in diameter and fairly circular. All the bones of the skull were very badly ossified and the sutures were wide. There was no bone

around the edges of the opening described. The head was elongated antero-posteriorly and the forehead very flat. There was no brain-substance in the cephalocele. The left ear was small and badly formed. The gums were very hard and white and the palate was cleft as far forwards as the premaxilla.

The lungs were non-expanded. The heart was well formed and the vessels leading out of it were normal.

The liver could be felt as a hard mass through the abdominal wall on the right side, and on the left another mass was present which afterwards proved to be the spleen pushed forwards and resting on a cystic kidney. On opening the abdomen the liver was found to be rather larger than usual, hard, and with a superficial "hob-nailed" appearance. It was quite difficult to cut, and on section strands of fibrous tissue were visible. The round ligament entered the liver at the bottom of a circular depression. The gall-bladder was normal.

The kidneys were found as two large diffuse masses, and each was simply a collection of small cysts. At the lower part of the inner aspect of each a relatively thin ureter was found which did not show any expansion on joining the kidney. At the lower end each ureter ended in a thick walled expansion, the one on the right being the larger, and these dilatations communicated directly with the urethra and apparently represented the bladder.

The intestine was normal and contained meconium. The scrotum was very cedematous, and on its anterior surface there was a groove about two inches long, at the upper end of which there was a small opening. On slitting this up a rudimentary penis was found. The urethra was then traced up and seen to end in the dilatation of the ureters described.

There were seven digits on both hands and both feet, in all cases one of the seven being very rudimentary.

A section of the liver showed some thickening of the capsule, and under a hand magnifying glass the general appearance still was that of multilobular cirrhosis. Under the microscope, however, many cystic spaces lined with cubical epithelium were seen in the fibrous strands. Some showed intra-cystic growth. There were a great many round cells mixed up with the immature fibrous tissue.

The above case is a good example of the deformities which so often accompany congenital cystic disease of the liver. Rolleston* mentions having seen two cases in the new-born, and in each the naked-eye appearance of the liver was more that of fibrous than of cystic disease. A cystic condition of the kidney seems usually to

* 'Diseases of the Liver.'

be also found when the liver is cystic as above, but the converse is not nearly so frequent. The above was a male child, but the disease is said to be commoner in females.

This case is rather in favour of Still's suggestion that an error in the development of the hypoblastic invagination of duodenum which forms the liver may be the cause of this variety of cystic disease.

CASE 2.—About a seven and a half months child; the head was very pointed with the anterior fontanelle on the summit. There was marked hydrocephalus. The palate was practically absent, there was only a ridge at each side, and the mouth and nose were only represented by fleshy processes. The heart showed one very large ventricle from which one large vessel came off; the other ventricle was so small that it was difficult to find, and appeared to be entirely shut off from any other cavity or vessel. Both auricles were present and the foramen ovale was very patent. The kidneys were even more lobulated than usual in a child, but otherwise normal. The testicles had not descended. The intestine was normal. There were no actual signs of syphilis. Six digits were present on each hand. The liver was cirrhotic in appearance, small and hard, with rounded margins.

Microscopically the liver showed broad immature bands of semi-formed fibrous tissue, with extensions into the lobules. In some parts it was difficult to make out the liver-cells, and large areas seemed to be degenerating, and did not take up the hæmatoxylin stain. Most of the new tissue had the appearance of being in the transition stage where the cells are elongating to form fibrous tissue, and the oldest tissue was certainly between the lobules in the strands mentioned.

The probability is that the above changes were due to syphilis, and the toughness and the fact that the fibrous tissue was partly organised suggest that it was not a very recent change. It was, however, not so definitely pericellular as is usually described, and in some parts a few cells seem to have been cut off together and surrounded by the new tissue. Rolleston* states that many cases described as diffuse sarcoma of the liver in children are very probably early stages of syphilitic cirrhosis: In the first stages of the latter disease there must be considerable difficulty in the diagnosis; however, in the case above the new tissue had become partly organised.

* *Ibid.*

Editorials.

THE AMALGAMATION OF MEDICAL SOCIETIES.

THE proposal to amalgamate the chief medical societies of London into one body, to be named "The Royal Academy (or Society) of Medicine," is causing much discussion, agitation, and even gnashing of teeth, in the councils and among the members of the several societies. Relatively to the importance of the question, it is curious and noteworthy how little reference has been made to it in the medical press. Hardly any serious criticism of the disadvantages of amalgamation has been put forward, yet the opposition expressed when members meet for discussion of the scheme is very considerable. Both societies and individuals appear afraid of incurring an invidious notoriety if they take a strong line of action in deprecating the proposal. It is really remarkably suggestive of moral cowardice.

Partly for this reason and partly because the interests of the Society for the Study of Disease in Children are involved, we propose to consider somewhat closely the merits and defects of amalgamation.

The primary argument advanced in its favour is that amalgamation is in the best interests of the medical profession. No one has ventured to proclaim in print that it is in the best interests of any one particular society that the scheme should be carried through. It is urged that union is strength, that the resulting "Academy" will be a most important body, that it will have very great influence, and that eventually it might acquire the position of advisory body to the State. Apparently the Royal Colleges are destined, in vulgar parlance, to take a back seat. The new Academy is supposed to be analogous to the Academy of Medicine in France, really a totally differently constituted body of very limited membership. It will be merely a heterogeneous mixture of members of the medical profession, elected by ballot and paying an annual subscription. The mode of election is a moderate safeguard against the very best known "black sheep" being admitted after the academy is constituted, but in the process of constitution it is impossible to prevent the admission of all those

who are already members of the various societies which agree to amalgamate.

The statement that amalgamation is in the best interests of the profession is much too readily accepted as a statement of fact, whereas it is merely an opinion. Judging by the enormous progress made during recent years in the literature and knowledge of those subjects for which special societies were started, as compared with the moderate advances before the introduction of specialism, it is quite possible that the advantages of amalgamation are over-rated. Certainly it is more than probable that, as sub-divisions of a large body, and not dependent on their own energies for their maintenance, the special societies will neither be so active nor so well supported as they are at present.

It is urged, also, that in this country we have no recognised 'Archives' which foreigners can be referred to as the burial-ground of the most valuable papers on recent advances on medical science. At present the unfortunate foreigner has to refer to the 'Transactions' of the numerous general and special societies, and they are not always within his reach. This courteous consideration of the foreigner is an admirable trait in our national character, but it is doubtful if the proposal is of value on any other grounds. The publication of such a volume implies the formation of a selection committee to decide which papers are of such merit as to deserve a place in these medical 'Archives.' The defects of selection committees are well known. The dogmatism and the lack of judgment and discretion among junior members, who may perhaps be in touch with the progress of recent work, and the conservatism of senior members, not to mention the results of influence and personal bias, have often rendered the work of such committees most unsatisfactory. Apart from this, there is no evidence of an overweening desire among the profession for such a ponderous tome. Specialists rarely desire to accumulate general medical literature. A specialist on electro-therapeutics repudiates with scorn literature concerning the deciduous mole.

The most rational argument advanced in favour is that of economy. For this reason the scheme is supported by many London members, notably by those who already pay three guineas a year to belong to one society, seeing that under the new scheme they pay no more and

yet become members of every other section. Just fancy what economy to be able to belong to an Academy which will provide its members with papers, clinical cases, pathological specimens, and discussions on all subjects of medical importance, with the use of the epidiascope thrown in, all for the price of two pairs of trousers a year! It is a new Utopia for the simple-minded medical man, struggling for existence and the saving of guineas.

It is assumed that the new Academy can be run successfully on a subscription basis of (1) three guineas a year for full privileges, (2) one guinea a year for membership of any particular section, (3) a further guinea a year for the use of the library, (4) an additional half-guinea for belonging to every section over and beyond one. We are almost surprised that no arrangements have been devised for "easy payments."

Almost certainly, if a choice has to be made between two buildings, namely that of the Royal Medical and Chirurgical and that of the Medical Society, for the future home of the august Academy, the building in Hanover Square will be chosen. To make it suitable and large enough a very considerable amount of money would have to be expended. It is still more certain that, at first, both buildings would have to be utilised to provide sufficient room for the various meetings. Now, the most unbusiness-like man will realise that little economy can be effected if serious building alterations have to be undertaken or if both sets of premises have to be maintained.

Another danger, not sufficiently realised, is that the new Academy will become the meeting-ground of the higher branches of the profession, and that the general practitioners will feel somewhat out of place, with the result that they will prefer to belong to local medical societies and will withdraw their support.

From the point of view of individual societies amalgamation must not mean absorption, yet in the case of the Medical Society it is difficult to foresee any other fate if it be transferred to Hanover Square. Its members have similar advantages to those they would get in the new Academy, though on a smaller scale; and unless they were taken in as original members at a guinea a year, there is little inducement for them to join in the scheme. If they are taken in on such terms, there is no apparent reason, except one of sentiment,

why those members of the Royal Medical and Chirurgical Society who are also members of the Medical Society should not go in on the same terms, a result which would considerably reduce the estimated income of the new Academy. Most societies have sent guarded adhesions to amalgamation. Practically all insist on the continuance of the annual publication of their 'Transactions.' One of the arguments in favour of the scheme is that a reduction could be effected in the yearly output of literature in the form of 'Transactions,' and it is obvious that the continuance of these would be financially impossible; even now it is a most serious drag on the resources of some societies. As the most glaring instance of this we may mention the Pathological Society. During five years, 1901—1905, this Society has spent on its 'Transactions' £1978, recovering £284 by sales, leaving a sum of £1694 to be provided for. Its subscriptions, including entrance and composition fees, amounted in the same period to £2042. Reference to its financial statements shows that, in addition to raising £250 by the sale of consols, it has converted a credit balance of £37 into a debit balance of £175. Twenty years ago this Society held £1167 consols and had a credit balance of £165. Now it only holds £854 consols and has a debit balance of £175. The Society wishes to guarantee the continuance of its 'Transactions.'

The Society for the Study of Disease in Children occupies a position intermediate between a general and special society. Although only in existence for six years, it has shown wonderful progress and vitality, having a membership approaching 350, a lectureship, and a sound financial position. It holds monthly meetings in London from October to May and a provincial meeting in June. Nearly half its members are country members. These country members necessarily cannot attend London meetings as often as they would wish. Many have joined the Society to encourage its special work and in order to receive its 'Reports,' so it seems imperative that the continuance of these admirable 'Reports' must be insisted upon. It is more than doubtful whether any scheme can be devised which would guarantee this, and there is serious ground for fear that one of the first economies of the new Academy would take the form of reducing expenditure on 'Reports.' Equally, it seems impossible to guarantee that the Society would

remain a permanently independent section. Diseases of children have come to be recognised as requiring special study, but only within comparatively recent years have they emerged from the maw of the specialist on diseases of women and children, an association still retained in the titles of some hospitals. Gradually the midwifery of the present day is passing back into the hands of midwives and Christian Scientists, and the exponents of this branch of medicine may come to regard it necessary, for their existence, to revert to the old conditions.

In other special societies, such as the Laryngological, Otological, Rhinological, and Ophthalmological, a great difficulty arises in connection with clinical cases. It will be difficult to devise regulations to exclude those who have full rights of membership from examining the cases, and still more impracticable to permit unlimited examination of the patients by the inexpert.

Another and most serious question is that of the admission of women. So far it has been glossed over. At present women are admitted as members of certain societies. As such they have a right to claim entry into the main body, and there is no logical reason for denying that right except the refusal of other societies to admit them to membership. At present it is proposed that they should be allowed to remain members of their section only, and should not be even permitted the use of the library.

Obviously the difficulties of amalgamation are almost insuperable. Amalgamation of bodies which have drifted apart is always a most difficult matter. It is easy to divide and sub-divide into sections. One has only to study the history of religion in this aspect, but would any sensible man suggest the possibility of re-amalgamating the numerous sects? Will the Nonconformists and members of the Church of England unite and lie down with the Christian Scientists, the "Shakers," and the Peculiar People?

That an Academy of Medicine is a desirable institution is probable, but the present method of creating one is doomed to failure. It must be either started as an entirely new creation or on a much smaller scale, by the amalgamation of the Medical, Royal Medical and Chirurgical, Clinical, and perhaps the Pathological, Societies. At present the special societies should be left severely alone. The tact,

the suavity, and the business capacity of a company promoter are needed to amalgamate the heterogeneous interests of a large number of societies unless it is patently obvious that amalgamation is free from drawbacks.

The scheme at present before the profession was conceived in a moment of enthusiasm; the difficulties of its pregnancy were not considered at the time of conception, and an attempt has been made to obscure them with a cloak of silence, and the hydra-headed monster in process of development appears doomed to abortion. Should it ever reach full-time it would probably die of financial inanition or drag on ineffectively in a state of marasmus.

A NEW DISEASE: CATERPILLAR'S RASH.

WEDNESDAY, June the 20th, was a red-letter day for the Chelmsford Rural Council and their medical officer, for the news had been flashed abroad on the wings of the mode of motion known as electricity that a new disease had been brought to light in Essex. It is permissible to employ the metaphor of wings, for this wonderfully novel complaint had been traced to caterpillars. It is a pity that prehistoric man—nay, uncanny *Pithecanthropus erectus* himself—cannot be conjured up by some quacksalver spiritualist fakir and asked about his rashes in Esperanto or other universal language spoken by next to nobody, for assuredly the disease just discovered, early in the twentieth century, in happy Essex, would be described to us in a mixture of sounds and signs. Some of the news agencies will be notifying the death of Queen Anne next, and convulse the world over its ham and eggs at the breakfast-table. But to be serious, in this wondrous age of startling journalism, let us return to our muttons—or rather caterpillars. There is a little mystery about the Essex disease which must first be cleared up. In the published paragraph it is referred to as caterpillar's disease, but in the account of it the public is gravely informed that "twenty children were affected with it," which statement makes things still more complex and the brain to stagger. If caterpillars in Essex have got a rash, then it is high time the matter should be seen to and dealt with sternly but firmly withal. A society for the prevention of rashes

among caterpillars should be at once started and money collected, say, from the butterflies of fashion. Or some budding Pasteur from the Lister Institute should immediately take a parliamentary ticket (return) to the locality in Essex suffering from this plague and investigate this new silk-worm disease. On the other hand, the caterpillars may be enjoying their normal health and not affected by *Dermatitis larvæ Chelmsfordii* at all, and the children turn out to be the victims of the complaint. Now to business. Over fifty years ago an industrious German investigator, Will by name, analysed the delicate hairs of various kinds of caterpillars, said he had found formic acid in them, and stated that that compound was at the bottom of the mischief. Since then many others have worked at the subject, and contended that the irritating substance found in the hairs and in the glands situated at their roots was allied to cantharidin. It is well known that the caterpillars of *Cnethocampa pinivora*, *Cnethocampa pithyocampa*, and *Cnethocampa processionea* give rise to trouble; to a less extent the same may be said of *Gastropacha* and *Arctia*. The larva of *Harpyia vinula* produces 40 per cent. of formic acid. It will interest the Chelmsford Rural Council to know that the caterpillar of *Cossus ligniperda* can elegantly expectorate a caustic, greenish sputum of pungent odour to a distance of two feet. As to the watery eyes mentioned in the Essex epidemic, Meixner has written a dissertation on caterpillar-ophthalmia. Further, the caterpillar of a common or garden butterfly, *Pieris brassicæ*, has given rise to colic, salivation, stomatitis, and other alimentary symptoms when swallowed by cows and horses. According to Livingstone, the Bushmen employed a small caterpillar to poison their arrows with. Again, the silk-worm caterpillar excretes an irritating substance well known to the workers in silk factories. When the fine hairs of certain caterpillars are artificially freed of their irritating substances they are innocuous, but not so hairs used *au naturel*; these give rise to severe inflammation. It is a curious fact, mentioned by Kobert, that the cuckoo eats these irritating caterpillars with impunity; indeed, he (the cuckoo) looks upon them as tit-bits, just as the gourmet loves ortolans and caviar. The cuckoo idea can be strongly recommended to the Chelmsford Rural Council.

Abstracts from Current Literature.

Medicine.

Transposition of the viscera (*New York Med. Journ.*, November 18, 1905).—**Randolph** reports the case of a boy, aged 9 years, in whom the apex of the heart was situated half an inch within the right mamillary line, and an inch below the nipple in the sixth intercostal space. The maternal grandfather of the patient had also transposition of the thoracic viscera, a feature of very considerable interest.

JAMES BURNET (Edinburgh).

Cases of relapse in measles (*Lancet*, December 23, 1905).—**R. G. Leach** reports a recent epidemic (262 cases) of measles at Ledesma, in the Argentine Republic. Four of these cases relapsed. The first was a girl aged 10 years, who developed a well-marked rash fourteen days after recovery, with all the usual premonitory catarrhal symptoms. The second was an infant, aged 11 months, in whom symptoms reappeared two days after recovery from the first attack, and a well-defined rash two days later. An infant of 16 months, living in the same house as the last case, was seized eight days after the first eruption had faded. The fourth patient was a child aged 3 years. In her case the first attack was very mild, with few constitutional symptoms, although the rash was typical and abundant. The temperature, however, did not return to normal after the disappearance of the eruption, and on the eleventh day a fresh rash appeared which at first was discrete but later became so abundant that the whole surface of the body was covered. This eruption remained out for seven days before beginning to fade. On the twenty-second day from the commencement of her illness the patient developed a mild broncho-pneumonia. It is interesting to note that all four cases eventually recovered, although in the third convalescence was very much prolonged.

JAMES BURNET (Edinburgh).

Pneumonia ushered in by abdominal symptoms (*Lancet*, December 30, 1905).—**D. W. C. Hood** records, in the course of a post-graduate lecture among others, the two following instructive cases. A delicate lad had during the night been suddenly seized with severe pain over the left epigastric region. The pain was accompanied by vomiting, which had been incessant for several hours. There was a temperature of 102° F., and the breathing was quick. During the first twenty-four hours the stomach irritation was practically the only symptom, but the following day sharp crepitant râles at the base of the left lung, followed by consolidation, established the true nature of the illness. The other case is that of a young girl who had been operated on ten days previously for appendicitis. There had been no untoward symptoms, and the wound was perfectly healthy. On the eighth or ninth day after the operation the patient was seized suddenly with illness of an indefinite nature, the principal symptom being extreme irritability of the stomach. No food could be retained, and incessant attacks of vomiting were rapidly sapping the strength of the patient. Forty-eight hours after the commencement of the illness definite signs developed at the base of the left lung. There was a slight cough and quickened inspiration. The cough increased, becoming paroxysmal. The patient eventually made a complete

recovery. Hood urges the importance of not neglecting a complete and thorough examination of the chest in all cases of acute abdominal pain which are sudden in onset, accompanied by pyrexia and quickened respirations. In such cases the physical signs denoting implication of the chest may be some hours, not infrequently some days, before developing sufficiently to warrant an exact diagnosis.

JAMES BURNET (Edinburgh).

A case of melæna neonatorum ('*Lancet*, December 30, 1905).—Heap reports the case of a strong male infant who, until thirty-three hours after birth, was perfectly well. He then vomited quite suddenly a large quantity of red blood, and also passed a considerable quantity of dark-coloured blood *per anum*. The child, however, did not appear to suffer much from the effects of the hæmorrhage, as he was warm and only slightly pale. He was kept warm and quiet, and given frequent sips of plain water. Three hours later the hæmorrhage recurred. The whole aspect of the child now became changed. There was now intense anæmia, the face had a drawn look, and the cry became feeble and whining. He was given 15 minims each of castor and olive oils, together with constant sips of iced water. This was continued for twenty-four hours, when no further hæmorrhage was found to have taken place. The motions gradually became normal, and eventually the child recovered, although at three weeks old he was still somewhat anæmic and feeble.

JAMES BURNET (Edinburgh).

On the plantar reflex and Babinski's phenomenon in 1000 children ('*Wien. klin. Wochens.*, 1905, No. 22).—G. Engstler.—As a result of the examination of 1000 children up to the age of three not suffering from any cerebro-spinal affection Engstler found that the new-born, and especially those born before term, react with dorsal flexion, that in the third year of life plantar flexion is the normal response. During the period of change from dorsal to plantar flexion, more especially during the second year, the response may be absent altogether. These results show that Babinski's phenomenon can only be considered of value after the second year.

D. O'C. FINEGAN.

Uncinariasis ('*Arch. of Pediat.*, 1906, vol. XXIII, p. 241).—S. S. Adams reports a rare case of hookworm disease in a white boy, aged 12 years, a native of Maryland. The early symptoms were tiredness, sleepiness during the day, and disinclination for games. Soon he developed almost continuous headache and great muscular weakness. His skin became of peculiar yellow tint. In four to five months he was too weak to walk, and the anæmia was profound: red cells 1,500,000, white 5600; hæmoglobin 20 per cent. Thousands of the ova of the *Uncinaria americana* (ankylostoma) were found in the stools. Some contained segmenting ova and others young embryos. He was given a light supper and a tablespoonful of Epsom salts at bedtime, a similar dose of salts at seven next morning, and 10 grains of thymol in an hour's time. Two more doses of the thymol were given after intervals of an hour and a half and another dose of salts after the last. Food was withheld until five in the afternoon. The treatment was repeated three times after intervals of seven to eleven days. Iron and manganese were also given. The treatment was repeated three weeks later, and after that he was discharged cured. A distinct uncinaria was proved to infest man in America in 1902, being endemic in the Southern States. Cases have been ascribed erroneously to malaria and to dirt-eating. The worms are about half an

inch long. They live in the small intestine. Ova escape in the faeces and hatch in about twenty-four hours. Infection takes place by the mouth, by drinking-water, food, or soiled hands. Cases vary much in severity. Ova are found in the stools in four to ten weeks after infection. Local indefinite symptoms are followed by anaemia and, in bad cases, by dropsy. Even after isolation from source of infection the disease may persist for six or seven years. The diagnosis depends on the presence of ova and perhaps blood in the stools. Prognosis is good if treatment is adopted reasonably early.

EDMUND CAUTLEY.

The urine in infants (*Arch. of Pediat.*, 1906, vol. xxiii, p. 329).—**H. Dwight Chapin** reports the results of various examinations. He describes a special urinal which he devised for collecting the urine, so as to avoid the unsatisfactory methods of the sponge and cup and the difficulties and dangers of the catheter. Albumin was found in 75 out of 86 cases of gastro-intestinal disturbance of varying severity to the amount of a trace in 29, faint trace in 36, heavy trace in 15. Casts were present in 37, hyaline, granular, epithelial, and mucous. Of 16 fatal cases 14 had albumin and 10 had casts in addition. Indican was present in 22 out of 32 cases examined. In 49 out of 57 cases of pulmonary disease albumin was present: trace 13, faint trace 30, heavy trace 6. Casts were present in 32. Of 17 fatal cases 15 had albumin and 10 had casts in addition. Indican was present in 16 out of 23 cases. In 31 out of 45 cases of other kinds of general illness albumin was found. In 9 out of 11 cases of cerebro-spinal meningitis casts and heavy traces of albumin were present. Chapin regards these observations as proving that traces of albumin and a few casts are often produced by any disturbance of the bodily functions in infancy, that they are due to slight congestion and irritation of the renal tubules, and that they are of no special significance. Esbach's test was used, and its excessive fineness probably accounts for the frequency with which albumin was found.

EDMUND CAUTLEY.

Myotonia congenita, or Thomsen's disease (*Arch. of Pediat.*, 1905, vol. xxii, p. 812).—**F. S. Meara** reports a case in a boy aged 10 years, of healthy American parentage, the third of five healthy children. At twenty-one months he had an attack of measles, followed by pneumonia. At two years of age stiffness of the muscles of the legs, causing an impediment in gait, was noticed. At times the whole body was rigid. From three to six years of age the condition was at its worst. The stiffness involved all the muscles of the body and came on at the beginning of an effort of any kind. The rigidity quickly disappears and the muscles become supple. It was worst on fatigue, and in damp or very hot weather. Speech and mental condition were unaffected. The muscles of the eyes and of expression were involved, so too the tongue, causing a muffled tone of voice. The muscular development was very marked. The knee-jerks were active. Electrical examination: A continuous tetanic contraction was induced by a faradic current smaller than usual. The muscles were abnormally easily excited by galvanism. Vermicular contraction could be induced by a sharp blow with the finger or by stroking the muscle with the current closed at the cathode (statile galvanism).

EDMUND CAUTLEY.

Edema in infantile gastro-enteritis (*La Presse Médicale*, 1905, No. 94).—**R. Romme**, in reviewing this subject, says that it is usual to attribute this condition to a concurrent toxic nephritis caused by the poisons formed

in the intestines. The rarity of albuminuria is perhaps the result of the difficulties in the way of investigating the urine in infants with diarrhœa. **Hutinel** has shown that œdema is less rare than is usually supposed, but that in a large majority of cases it is impossible to attribute it to a true nephritis. This view has been confirmed by **Barthelemy** ('Gaz. Méd. de Nantes,' 1904, p. 1033), **Follet** ('Rev. fr. de Méd. et de Chir.,' 1904, p. 1019), **Stoelzner** ('Med. Klinik,' 1905, No. 19), **Rocaz** ('Gaz. Hebd. des sc. Med. de Bordeaux,' 1905, p. 532), and **L. F. Meyer** ('Deutsche med. Wochenschr.,' 1905, p. 1464). Œdema is most common in recurrent subacute enterocolitis, and is localised to the backs of the hands and feet and the thigh. Sometimes it spreads to the face and has the aspect of Bright's disease. It is sometimes painful, resembling Barlow's disease. It is more common at the end of the illness, and rapidly disappears under a chloride-free diet: the prognosis is usually favourable. **Hutinel**, commenting on the absence of albuminuria, attributes the œdema to retention of chlorides, a theory confirmed by the experimental researches of **Heubner** on an infant of six weeks. Each time chloride or phosphate of sodium was given the quantity of urine diminished while the body-weight increased. When the saline was withheld polyuria ensued, and the body-weight rapidly diminished. Examination proved that the oliguria was invariably associated with retention of chlorides—from 2·2 gr. to 0·9 gr. in two days; no albuminuria or renal elements. The autopsy showed the kidneys perfectly healthy. This case and two others reported by **Meyer** show that this œdema may be attributable to retention of chlorides and probably a transient functional renal insufficiency. **Rocaz** is of opinion that this is true of the majority of cases, but having observed two in which traces of albumin were found, he inquires whether this insufficiency is not caused by true kidney lesions, and whether they do not exist even where there is no albuminuria.

VINCENT DICKINSON.

Ideas of grandeur in general paralysis of youth ('*Rev. Mens. des Mal. de l'Enf.*,' *March*, 1906, p. 97).—**Babonneix** commences an interesting paper by quoting the opinion expressed in 1853 by **Lasègue**, "General paralysis is a disease of adults and of the middle period of life," and quotes the cases occurring at an early age since 1877 with a critical analysis of them. In its broad lines this disease at an early age resembles that of the adult, having the same specific and neuropathic heredity, the same lesions, symptoms, and evolution, but the author establishes certain fundamental distinctions between them: (1) The ideas of grandeur, without being frequent, are not so exceptional as is generally believed, being marked in 12 to 14 per cent. of the cases. (2) They take their principal characteristics from the age of the child, being childish ideas of grandeur. (3) Except in general paralysis they are hardly ever observed before the age of twenty in early dementia.

VINCENT DICKINSON.

A case of Oppenheim's congenital muscular atony ('*La Pédiat.*,' *March*, 1906, p. 190).—**A. Jovane** reports this case. A male child, aged 3 months. Parents healthy; no history of tubercle, syphilis, malaria, alcoholism, or hereditary neuropathy in any member of family. The mother had not suffered in any way during gestation. Appearance at birth healthy, except that the limbs were flaccid and motionless, and the head rolled from side to side. On admission at the clinic at Naples nutrition was excellent and nothing abnormal was found except the state of immobility in which

the child lay in its mother's arms. The lower limbs were in a state of flaccid paralysis, the upper limbs less so, slight movements of flexion being obtained from repeated stimulation. The head rolled according to the position of the body. In the sitting posture the back curved with the concavity anterior, the head bent on the chest. The auxiliary muscles of respiration were evidently paralysed, there being an inspiratory retraction of the thorax in front at the point of the insertion of the diaphragm. The state of nutrition of the paralysed muscles and of the *panculus adiposus* was perfectly normal, cutaneous sensibility was intact. Cremasteric and abdominal reflexes normal. Tendon reflexes everywhere abolished, as was also the plantar reflex. Pupils acted normally. The galvanic reaction in the upper limbs, as in the lower, was rather weak, and faradaic reaction still more feeble. The case seems one of myotonia (Oppenheim) or congenital muscular atony (Berti). Death occurred from broncho-pneumonia at the age of five months.

VINCENT DICKINSON.

Habitual constipation in children (*Riv. di Clin. Pediat.*, April, 1906).—**Concetti** divides the causes into three groups—(1) Alimentary. This may be caused by scantiness of milk; the child passes little urine, takes the breast greedily, and does not thrive. The best method of ascertaining this is to weigh before suckling and fifteen to twenty minutes afterwards. The remedy consists in another nurse or mixed feeding. At other times the child passes much urine and is satisfied with suckling, but does not thrive; in such a case the milk is sufficient in quantity but not in quality. The same happens in artificial feeding when the dilution of the milk and the relation of its various constituents is not maintained as under normal conditions. To correct these errors it is sometimes sufficient to add a teaspoonful of some diastased food, such as Mellin's, to each bottle. After the fifth month barley, cream, or butter may be added. Constipation may be caused by vomiting produced by the bad habit of rocking the child after feeding, or by pyloric stenosis, which the author considers due in the great majority of cases to spasm caused by the introduction of too much food, which irritates the mucous membrane, and with reflex spasm simulating true stenosis and the sensation of a pyloric tumour. Older children suffer from constipation from their diet being limited to milk, eggs, and meat. (2) Functional, due to diminution in activity of the intestinal muscles and nervous system, the latter being either local or general. All inflammations of the intestinal mucosa may cause paresis of the muscular coat, with constipation and meteorism. In some cases it is connected with acute general infection, specially measles, at other times with drugs, opium, lead, tannin, etc. Such cases are treated by a vegetable and fruit diet and the use of massage, cold packs, and electricity, some laxative, as rhubarb, senna, or magnesia. (3) Anatomical. Occlusion of anus or rectum, narrowing of the digestive tube, congenital or acquired (syphilitic and typhoid cicatrices) anal fissures. A very frequent cause in early infancy is excessive length of the large intestine, which only disappears with increasing years. Congenital megacolon is also a cause not often recognised.

VINCENT DICKINSON.

Primary sarcoma of pleura and lung in a young girl (*The Post Grad.*, April, 1906).—**R. Abrahams**.—The patient, a girl, aged 17 years, had a healthy family history, and had had no illness for twelve years; previously to that she had suffered from scarlet fever and measles. In the middle of May, 1905, she was suddenly seized with pain in the back of the

chest, on the right side, and the temperature rose to 102° F. No cough or dyspnoea. After three weeks a slight bulging was seen over the site of the pain; this increased considerably. In October she was pale and thin, but without fever. The heart was dilated and hypertrophied and displaced to the left, the impulse beating in the upper part of the axilla. There was dulness above and below the clavicle on the right side and behind from the upper part of the scapula to the base. The breathing was exaggerated over the dull area in front, but it was absent over the dulness behind, and here vocal and tactile fremitus were absent. No râles were heard. Below the right scapula was an oval mass 3 by 2 inches; it was hard, and the ribs could not be seen or felt over it. The liver was enlarged. The blood-count gave as follows: Polynuclears 55 per cent., small lymphocytes 48 per cent., large lymphocytes 8 per cent. No eosinophiles or basophiles. Aspiration of the tumour was negative.

J. PORTER PARKINSON.

Our children and tuberculosis ('*Mont. Med. Journ.*,' May, 1906).—**Sir James Grant** speaks of the great importance of the health of children and their environment during the period of school life. The systematic examination of 338 school children by H. Greenwood, Medical Officer of Health for Blackburn, shows that 54 were suffering from tuberculous disease. This teaches the importance of careful periodic inspection of school children and an inquiry into the standard of living in the residences of those diagnosed as consumptives. A trained nurse can teach the principles of isolation, disinfection, and proper feeding. It is important that no child should work at an industry till after the age of twelve years. In New York children of six, seven, and eight are working in cellars and garrets, sewing, making artificial flowers, etc., and it is estimated that in the Republic fully two million of children under sixteen are earning their own living.

J. PORTER PARKINSON.

Chorea in a child aged 2 years ('*Antiseptic*,' May, 1906).—**Ridley Mackenzie** reports a case of a female child, aged 2 years, of nervous heredity who in June had an attack of subacute rheumatism followed by a cardiac lesion; the following month there was a recrudescence of the rheumatism, and a week later choreiform movements began, chiefly in the muscles of the head, neck, and arms. The chorea lasted a month, during which time she was treated with bromides and dialysed iron. The chief point of interest is the tender age of the patient, this disease being rare under five years of age.

J. PORTER PARKINSON.

Pathology.

Tuberculosis of the tonsils and lymphatic glands, together with congenital bronchiectasis, cirrhosis of the liver and pancreas ('*Lancet*,' December 9, 1905).—**J. Graham Forbes** read an account of a very interesting case at the Pathological Society on December 5. The patient was aged 2 years and 2 months. For ten days there were swellings in the neck and enlargement of the abdomen. On admission to hospital there was marked swelling of the cervical, post-auricular, axillary, and inguinal glands. The tonsils were swollen and ulcerated. No sign of cardiac or pulmonary disease was detected. The liver was enlarged, extending to the umbilicus. The spleen was also somewhat enlarged. The blood examination showed some anæmia and considerable polymorphonuclear

leucocytosis. The child had slight rickets, but showed no evidence of congenital syphilis, nor could any history of syphilis be obtained from the parents. The tonsils were removed and showed, on microscopical examination, typical tubercle. The temperature was raised irregularly. Diarrhoea and vomiting occurred. The glands diminished in size, but the condition of the abdomen remained the same. Death occurred after six weeks in hospital. At the necropsy there were found tuberculosis of the cervical, mediastinal, bronchial, and mesenteric glands, congenital bronchiectasis of both lungs, and well-marked honeycomb appearance. The liver was much enlarged and weighed $34\frac{1}{2}$ oz., fairly smooth surface, thickened capsule, greenish-white in colour, with extensive fibrosis on section. The pancreas showed similar cirrhotic changes. There was no trace of tubercle in the liver, pancreas, or lungs, which was confined entirely to the affected glands.

JAMES BURNET (Edinburgh).

Spirochetæ in congenital syphilis, a further find of (*Deutsch. med. Wochens.*, 1905, No. 34).—**Reischauer** examined the stillborn child of a syphilitic mother, and found in smear-preparations of the spleen, liver, and lung typical spirochetæ, none in the kidneys or the blood. Especially easy of detection were they in the liver. This organ showed histologically diffuse hyperplasia of the connective-tissue with corresponding diminution of the liver cells. Stained sections failed to show the organism.

D. O'C. FINEGAN.

Oxyuris in the intestinal wall (*Deutsch. Arch. f. klin. Med.*, vol. LXXXI, Nos. 3 and 4).—**O. Wagner**.—During the autopsy on the body of a five-year-old child, which had succumbed to an acute attack of scarlatina, Wagner found in three Peyer's plaques about fifteen to twenty small nodules of about the size of a pin's head. They were globular and greyish-white in colour and felt like grains of sand. Microscopically they were found to consist of lime in which several specimens of oxyuris vermicularis were imbedded. Wagner believes that on coming into contact with the diseased and superficially eroded follicles of the plaques the young oxyurides penetrated into the deeper tissues, where they were eventually enclosed in the healing process and surrounded by a calcareous envelope.

D. O'C. FINEGAN.

The prognostic import of leucocytes in human milk during lactation (*La Pediatria*, January, 1906, p. 39).—**V. Trischitta** publishes his experimental researches undertaken to ascertain why some children at the breast at times are deficient in nutrition. Observations have been published by Marfan, Concetti, and others on the "colostral" elements in milk, and the presence of leucocytes has been noted by Abba in inflammatory states of the breast, but the author's cases embrace the periods of pregnancy, the puerperium, and prolonged lactation, and his technique by centrifugation, fixing, and staining is described, and his conclusions are as follows: Before parturition and during the first few days after mononuclear leucocytes usually predominate, while on the second and third day polynuclears begin to appear which are indicative of the flow of milk and directly proportionate to its intensity, so that about the fourth or fifth day nuclear lymphocytes take their place. After the fifth day only a few degenerate leucocytes are found. When, however, the equilibrium between secretion and excretion is disturbed the above process undergoes modification. If, for example, the

woman does not give the breast a persistence of mononuclear leucocytes is observed which absorb the fat and sometimes present signs of degeneration, phenomena identical with those of the onset of milk, and if the lacteal stasis is absolute and the tension high the polynuclears predominate and become loaded with fat. The same happens in the case of a nurse with abundant secretion and a weak or puny child which refuses the breast, also during menstruation and in galactoforitis and lymphangitis. Thus, the presence of polynuclear leucocytes in the mammary secretion shows that the flow of milk will be intense and its secretion active throughout the whole of lactation, while a large proportion of leucocytes at different periods of lactation signifies loss of equilibrium between secretion and excretion and is a bad prognostic sign. A large proportion of lymphocytes in the colostrum or in milk when suckling is suspended is of bad prognosis.

VINCENT DICKINSON.

Tubercular meningitis in infants—somnolent form. Diagnosis by lumbar puncture (*La Clin. Infant.*, February, 1906, No. 4, p. 114).—**Lesage**, in a communication to the Société des Hôpitaux, accurately describes this form. After a prodromal stage, more or less marked, characterised by slight disturbances of nutrition and symptoms of gastro-enteritis, the meningitis makes its appearance as an attack of sleepiness: then the infant remains drowsy for hours, the eyes fixed, with half-closed eyelids: the pulse is irregular, the body-weight decreases, and in four to eight days, *rarely longer*, the torpor gives way to coma, and death ensues. The above constitute the essential clinical signs of the disease. In order to complete the picture it must be remembered that very frequently the infant is at the breast or bottle-fed, and has unusual symptoms of gastric irritability, milk being persistently rejected. The vomiting stage lasts eight to ten days or more, and is hardly ever attributed to meningitis, being a symptom of such common occurrence, and it is only when somnolence shows itself that the possibility of a cerebral affection suggests itself. In the twenty-five cases studied by the author the cerebro-spinal fluid was always clear. The cytological formula in twenty-four cases was that of subacute meningitis—marked mononucleosis (82 to 94 per 100). In general the elements are less numerous than in the meningitis of adults, but the cellular concentration of cerebro-spinal fluid is subject to great variations. On one occasion only was there found a turbid fluid with marked polynucleosis (73 per 100), and this was a case of meningitis associated with Weichselbaum's diplococcus. Koch's bacillus was found by centrifugation in seven instances: in the other cases the result was negative. Similar to facts recorded by Vidal and Le Sourd, the virulence of the cerebro-spinal fluid was very marked.

VINCENT DICKINSON.

The diagnostic significance and therapeutic value of lumbar puncture in infantile tubercular meningitis (*Riv. di clin. Pediat.*, February, 1906).—**O. Cozzolino**, after a careful study of eleven cases, arrives at the following conclusions: (1) Cytological examination of the cerebro-spinal fluid in infantile tubercular meningitis is a useful diagnostic aid, but has not the pathognomonic value attributed to it by Vidal and Ravant. (2) Polynucleosis is not an infrequent occurrence in basic meningitis; it may be found not only when Koch's bacilli are present (Concetti), but also when they are absent (Comba-Cozzolino) or when they are found in small numbers (Comba): in the two latter instances, however, the polynucleosis is much

less marked. (3) Polynucleosis being found two to four days before the death of the patient cannot be ascribed to that event as stated by Torday and Berthier. (4) In every case, especially in those where it gives a doubtful or unexpected result, cytological examination must be taken in conjunction with other diagnostic signs, such as the formation and appearance of the reticulum, the quantity of albumin, the presence of substances which reduce copper salts, and inoculation into animals. (5) The force with which the fluid issues has only a relative diagnostic value. (6) Concerning the therapeutic value of lumbar puncture, the author agrees in the main with Concetti and Marfan, that in rare instances only it affords a slight and transient relief to the symptoms. In one of the cases the marked improvement noticed after the fourth puncture must probably be attributed to the tubercular antitoxin injected into the spinal canal. (7) Lumbar puncture is therefore indicated in tubercular meningitis as a diagnostic method in doubtful cases, and although usually harmless, it may at times, as Concetti asserts, hasten the course of the illness to a fatal termination.

VINCENT DICKINSON.

Persistent vomiting in an infant (*Dom. Med. Monthly*, March, 1906).—**E. H. Hall** relates the case of an infant who, though most carefully fed, vomited all nourishment within ten minutes after feeding. At seven months it weighed the same as at birth. Pyloric obstruction was diagnosed and posterior gastro-enterostomy performed, and the stomach was found to be normal in size, but with the muscular coat well developed; no thickening of the pylorus; the transverse colon was greatly distended and the intestines absolutely empty. The child lived twenty-four hours. At the necropsy a plug of mucus was found obstructing the pyloric opening, the lumen of which was 35 centimetres. This was considered to be a case of catarrhal gastritis, with exudation of mucus sufficient to obstruct the outlet, and this obstruction was evidently of some standing, as there was not a vestige of food in the bowels. Hall says such cases are not infrequent and cannot be differentiated from congenital atresia, except, perhaps, that gastric lavage might be of some avail.

J. PORTER PARKINSON.

Renal adeno-sarcoma (*Arch. of Pediat.*, 1906, vol. XXIII, p. 282).—**Eleanor C. Jones** reports a bilateral case of congenital origin in a male infant, aged 7 months, weighing 19½ lb. The tumours were discovered one month previously, when the child was taken to a doctor for some slight bowel trouble. According to the mother the abdomen had been large since birth, but there had been no symptoms. When examined at seven months of age large tumours were found in each iliac fossa and the testes were undescended. The recti-muscles were separated about two inches, and the abdominal veins were distended. The urine contained a heavy cloud of albumin and a few leucocytes. Death resulted from shock after an exploratory incision. The tumour on the right side weighed 24½ oz., the left one 26 oz. The kidney on each side was flattened and superimposed on the tumour. Microscopically the tumours were composed of dense connective tissue; muscle-fibres, mainly striated; masses of round and spindle-shaped cells, epithelial tumours, and large areas of myxomatous degeneration.

EDMUND CAUTLEY.

Cystic kidneys (*Arch. of Pediat.*, 1906, vol. XXIII, p. 321).—In a child, dying at fourteen months, under the care of **L. Emmet Holt**, multiple abdominal tumours were found to be due to cystic kidneys, with double

hydronephrosis, great dilatation of the ureters, and hypertrophy of the bladder. At birth he had a very large abdomen, "like an alderman's," and "lumps" were present. At three months sarcoma of the kidneys was diagnosed. At six months he weighed 14 lb. 7 oz., was pale and cachectic, suffering with diarrhoea. Three lumps were felt in both lumbar regions and right iliac region. The entero-colitis was cured in three weeks, and he was discharged from hospital with abdominal condition unaltered. Two months later he was re-admitted for alimentary trouble. Urine amounted to 9 oz. in twenty-four hours; pale amber colour, slightly cloudy; sp. gr. 1004; no albumin or casts. At eleven months he weighed 18 lb. and appeared very healthy. The lumbar tumours were less globular in shape, sharply defined, but of irregular shape, firm, hard, and slightly movable, with absence of resonance. Death resulted after two weeks' illness characterised by fever, vomiting, constipation, anorexia, abdominal pain, and tenderness. The urine, five days before death, was pale yellow, alkaline, somewhat cloudy, and contained a trace of albumin, a few hyaline casts, a few red cells, and numerous pus-cells. Three days later there were more pus, albumin, and cocci. Leucocytosis had increased from 21,000 to 23,000. Autopsy: Left kidney was represented by a large, lobulated, cystic tumour, 16 cm. long, with a shell-like cortex. The ureter was larger than the colon and 7 cm. in circumference at its entrance into the bladder. It was elongated, tortuous, and convoluted, resembling a distended small intestine. Right kidney showed less advanced cystic change and was 12 cm. long, with a thin cortex of renal tissue. The ureter was about two thirds the size of that on the left side and convoluted in the same way. The bladder formed the ilio-hypogastric tumour. Its walls were more than 1 cm. in thickness. There was no obstruction in the urinary passages. No peritonitis was found. Holt had seen a similar condition in a child dying of marasmus at one month, with the same absence of obstruction to the flow of urine. Yet the pathological condition points strongly to some such obstruction present in intra-uterine life. Death seemed due to infection of the left kidney, converting the hydronephrosis into pyonephrosis. In one reported case the child lived, with double hydronephrosis, to four years of age. The etiology is very obscure.

EDMUND CAUTLEY.

Lipomatosis (*Arch. of Pediat.*, 1906, vol. XXIII, p. 335).—**Jacob Sobel** describes a case of universal lipomatosis in a male infant, aged 11 weeks, of Jewish extraction. The first child was healthy. The second developed fat accumulation and enlargement of the head in the fourth week of life and died, after becoming blind, at the age of eight months from broncho-pneumonia and amaurotic idiocy. There was no family history of obesity, goitre, or syphilis. The parents were first cousins. The baby was breast-fed, and undue fullness of the cheeks was noticed in the fifth week of life. After that lipomatosis rapidly became general. The child became less sensitive to its surroundings, and the mother thought it blind. When he came under notice his appearance was that of a miniature fat man, and he weighed 14 lb. One week later he died, probably from pulmonary oedema. It was noticeable that throughout the head could be held erect, presumptive evidence against amaurotic idiocy. Partial or total blindness is not uncommon in lipomatosis, infantilism, and allied conditions. A weight of 14 lb. is not unusual at eleven weeks old, but in this case the size of the head and the body length were only those of a new-born infant.

EDMUND CAUTLEY.

Acute circumscribed œdema (*Arch. of Pediat.*, 1906, vol. XXIII, p. 361).—**A. D. Smith** and **F. S. Meara** summarise our knowledge of the peculiar affection described as urticaria tuberosa, giant swelling, periodic swelling, angio-neurotic œdema, etc., and report a case in an infant, aged 1 year. The attack was ascribed to a meal of cabbage and potatoes which was followed on the next day by a "pimple with a red circle round it." Early the following morning the left leg, up to the groin, was found swollen "as if it would burst." This condition lasted one day. In succession the left upper limb, right upper limb, and the right lower limb were similarly affected. Then massive swellings appeared over the parietals, occiput, chest, and abdomen, and micturition was scanty or absent. The swellings were hot to the touch, but did not pit on pressure. Practically the whole body was affected during the course of the disease, except the viscera. The child was put on a diet of barley-water and given calomel. Recovery ensued.

EDMUND CAUTLEY.

Therapeutics.

Chronic constipation (*Arch. of Pediat.*, 1905, vol. XXII, p. 806).—**H. B. Sheffield** ascribes to chronic constipation symptoms such as flatulence, anorexia, headache, restlessness, convulsions, proctitis, anal fissure, rectal prolapse, and piles. Apart from anatomical conditions, the main causes are faulty diet, atony of the bowels, and constitutional disturbance. Preventive measures are of great importance. A regular daily habit must be cultivated. Fat and water are important elements in the diet. In atony of the bowels recourse should be had to massage, oil enemas, hydrotherapy and electricity, galvanic or faradic, applied over different parts of the abdominal wall. If drug treatment is required, some of the following remedies may be used: soap and glycerine suppositories; medicated cocoa butter suppositories (with aloin and belladonna in spastic and nux vomica in atonic cases); enemas with small quantities of glycerine or larger quantities of soap-water: internally, magnesia usta, magnesia and rhubarb, compound liquorice powder, castor oil, cascara sagrada, calomel, followed by a mild saline aperient, and, in older children, the mineral salts or waters. Exodin is also recommended as tasteless, and efficient in doses of three to ten grains without causing any intestinal disturbance. The squatting position at stool should be adopted.

EDMUND CAUTLEY.

Citrate of soda in infant feeding (*Arch. of Pediat.*, 1906, p. 161).—**H. L. K. Shaw** reports the results of laboratory experiments to determine the effect of the addition of sodium citrate on the coagulation of milk. It had no effect on acetic acid curdling, but markedly delayed rennet curdling, and caused the formation of fine, soft curds. One grain to an ounce of milk was usually sufficient. Sometimes in clinical work as much as three grains was given with advantage. Wright and Poynton have advanced the explanation that the excess of lime-salts is precipitated. Variot states that a chloride of calcium is precipitated, but this is a soluble salt. Shaw, in conjunction with E. J. Wheeler, chemist to the New York State Department of Agriculture, treated large quantities of milk with the citrate, filtered it through ashless filter-papers, and examined the ash after ignition of the papers. They found no appreciable amount of ash and concluded that no precipitation took place, and that the result is due to some unknown combination between sodium citrate and calcium casein.

EDMUND CAUTLEY.

Therapeutics of functional enuresis (*Korresp. f. Schweizer Ärzte*, 1905, Nos. 17 and 18).—**Th. Zangger** gives the following *résumé* of the therapeutical measures: (1) Instruction of the parents and guardians of the child. Special stress is laid upon the gaining of the confidence of the child and upon stimulation of his *amour propre*; derision, contempt, and severe punishment are to be absolutely avoided. His whole education should be directed towards strengthening the power of will. (2) Diet and regimen. A daily evacuation of the bowels is to be insured; boiled or raw fruit (apples, pears, oranges, dates, figs, etc.) for breakfast and lunch will often be found sufficient. (3) Absolute abstention from fluids after 4 p.m. (4) The food should be sufficient and bland in character, meat, eggs, milk, vegetables, and fruit to be the chief items; condiments and salty articles of diet are to be avoided. (5) A hard bed, not too warm covering at night and a lateral cubitus are to be aimed at. The pelvis should be raised by lifting the end of the bed. (6) The child should be wakened twice during the night and made to urinate. (7) Hydrotherapeutics. A cold tub in the morning followed by a short and cold douche to the back. (8) Combined massage of the sphincters according to Thure Brandt.

D. O'C. FINEGAN.

The use of "Tachiol" in the treatment of infantile gastro-enteritis (*La Pédiat.*, March, 1906, p. 217).—**L. Piga** reports the beneficial effects of this substance, which is an aqueous solution of fluoride of silver of 10 per cent., limpid, colourless, odourless, having a metallic taste, but no irritant action. A solution of 1 in 5000 was employed for administration by mouth in doses of 150–200 gr. in twenty-four hours—that is, about a teaspoonful every two and a half hours. *Per rectum*, 25–100 gr. in each enema twice or three times daily. Nine typical cases are reported from the polyclinic at Turin, and seem to prove that "Tachiol," in a solution of 1 in 5000, is an admirable antiseptic in the treatment of acute and chronic gastro-enteritis in children, whether administered by mouth or by rectum. In all the cases an immediate improvement in the general condition was noted, the colour and spirits returning. In cases where there was frequent vomiting, rebellious to other methods of treatment, this ceased after one day's administration of Tachiol. The number of diarrhœic stools lessened in certain severe cases after two or three days and soon became normal in colour and consistence. All the children took the solution readily.

VINCENT DICKINSON.

Otology.

Ulcerative laryngitis with chondritis of the cricoid cartilage (*Rev. Mens. des Mal. de l'Enf.*, January, 1905, p. 25).—**Deguy and Detot**.—The case was that of a child aged 7 years. The illness began on March 18 with coryza and hoarseness, urgent dyspnoea on March 21 demanding intubation; no diphtheria or faucial inflammation, frequent cough and abundant muco-purulent blood-streaked expectoration, slight fever. No tubercle bacilli found on repeated examination. On March 23 there was a sudden attack of dyspnoea relieved by removing the tube; the child now remained fairly comfortable; the cough and expectoration persisted, the voice was affected, and the temperature oscillated at about 100.5° F. On March 30 another attack of dyspnoea occurred. Intubation was performed but gave incomplete relief; there was some swelling in front of the larynx, which was incised under the belief that there might be a juxta-

laryngeal abscess, but no pus was found. The tube was coughed out in the night, replaced in the morning, but ejected again. A worse attack occurred the next night, and the child died in spite of intubation, tracheotomy, and artificial respiration. Post mortem the mucous membrane was completely destroyed at the level of the cricoid, the posterior part of the cartilage was laid bare, and its inner surface was necrosed. A dense layer of leptothrix coated the cartilage and penetrated for a short distance into its substance. Streptococci were plentiful, especially on the edge of what remained of the mucous membrane, where they formed a regular emulsion.

HAROLD BARWELL.

The importance of routine examination of the middle ear in young children (*New York Med. Journ.*, November 18, 1905).—**Danziger** asserts, in a thoroughly original paper, that the middle ear in infants and young children is specially liable to be the seat of disease owing to its anatomical structure and framework. At birth it contains a gelatinous substance and a delicate serous membrane, which readily becomes inflamed. The amount of lymphoid tissue in the pharyngeal mucous membrane must also be borne in mind, as well as the fact that the lumen of the Eustachian tube is very narrow and easily becomes occluded. In middle-ear disease in children the discharge contains the pneumococcus in the majority of cases. He insists that the middle ear, under these circumstances, should be examined more carefully and more frequently in the case of infants and quite young children than it is at present.

JAMES BURNET (Edinburgh).

Diphtheria at the Hôpital des Enfants Malades (*Bull. et Mem de la Soc. Med. des Hôp. de Paris*, December 8, 1905).—**Marfan and Le Play**.—749 children were admitted to the diphtheria block at the Hôpital des Enfants Malades during the year ending May, 1905. 561 were found to have diphtheria. Of these 43 died, a mortality of 7·66 per cent. On subtracting 13 who died in less than twenty-four hours after admission, the mortality was reduced to 5·47. The number of admissions and mortality had been considerably higher in previous years. The reduced mortality is probably due to systematic prophylactic injection. 671 such injections were given between July, 1904, and July, 1905, to the brothers and sisters of the patients, none of whom subsequently contracted diphtheria. The low death rate is to be attributed to the scarcity of malignant cases in accordance with Marfan's law that since the employment of serum the mortality in diphtheria depends above all upon the frequency of malignant faucial cases, and no longer, as in pre-antitoxin days, on the number of laryngeal cases and the frequency of surgical intervention required in such cases. 382 of the cases were laryngeal, 29 died, a mortality of 7·5 per cent. 203 of these cases were intubated, only 7 tracheotomised, 27 died, a mortality of 12·85 per cent. Apart from bucco-pharyngeal irrigation used in ulcerating or necrotic forms, Marfan entirely dispensed with local treatment in faucial cases. In malignant forms subcutaneous injection of iodised oil, strychnine, sparteine, or caffeine was employed, or friction with collargol, but the results were not encouraging. The steam chamber hitherto used for the cases of croup and broncho-pneumonia has been discarded this year without bad effects. Instructive tables are given of monthly admissions and deaths, errors of diagnosis, of the serum complications, and of the mortality from intubation and tracheotomy at various ages.

J. D. ROLLESTON.

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A SECOND PAPER ON THE RADICAL CURE OF
INGUINAL HERNIA IN INFANTS AND YOUNG
CHILDREN.

By CHARLES GREENE CUMSTON, M.D.,
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IN the 'Philadelphia Medical Journal' for May the 2nd, 1903, I published a short paper on the radical cure of inguinal hernia in young subjects, wherein I reported seven cases of Bassini's operation on male infants varying in age from five months to twenty-one months. The conclusions arrived at were as follows: "(1) Experience has demonstrated the innocuousness of radical operation for hernia in infants. (2) The operation is indicated in all cases of strangulation, in all cases in which the contents of the sac cannot be retained by a truss, and in every case in which irritation of the skin is produced by the mechanical appliance, and in children of the poor who cannot receive the necessary and proper attention at their homes." The paper referred to was in reality a plea for operative interference, but in the present article I wish to consider more fully the various techniques employed and their applicability to young children and infants.

The testicle, which is primarily seated in the abdomen, comes

down through the anterior abdominal wall into the scrotum along a canal lined by a prolongation of the peritoneum, so that it may be said that at a given moment a preformed sac exists which is well arranged to receive the intestine as well, and for this reason the frequency of congenital inguinal hernia may be readily understood. In the large majority of cases the hernia will make its appearance during the first few days or months following birth, but it may not occur until much later—for example, in young boys ten or twelve years old—in which case it is termed “congenital” simply on account of its intimate relationship with the testicle, which shows that the hernia has arisen in the vagino-peritoneal canal, this having remained patent and is in direct communication with the abdominal cavity. Now, since the non-obliteration of the vagino-peritoneal canal is the principal cause of congenital inguinal hernia, it has given rise to a number of researches in this respect. Out of a total of 62 children under the age of one month Feré found the canal completely obliterated on both sides in only 34. Of 70 newly-born infants examined by Camper, in 34 the vagino-peritoneal canal was patent on both sides, while in 14 it was patent on the right and 8 on the left. Sachs found that obliteration had taken place in 41 per cent. of children examined during the first four months of life, whilst later on, from the fifth to the twelfth month, obliteration had taken place in 66 per cent. Zuckerkandl found the vagino-peritoneal canal patent during the first three months in 37 cases, and out of this total obliteration was absent on both sides in 20, 12 times on the right and 8 times on the left. The persistency of the vagino-peritoneal canal is met with more frequently on the right than on the left, which explains the greater frequency of congenital inguinal hernia on the right side. Out of a total of 424 congenital inguinal herniæ, Berger found 253 on the right, 119 on the left, and 52 times on both sides. Out of a total of 120 congenital inguinal herniæ, Kirmisson found 60 on the right, 48 on the left, and 12 times on both sides. All surgeons seem to agree that inguinal hernia occurs very much more frequently in males, and Kirmisson found 120 instances in boys and only 12 in girls. Feré’s statistics show 22 boys and 5 girls, while Sachs has only met with 3 inguinal hernias in girls and 100 in boys. The production of congenital inguinal hernia is intimately united to the descent of the testicle, but this may be complete, while in other cases it remains incomplete, from which fact is derived the classification of congenital hernia into simple inguinal hernia and hernia complicated with ectopia of the testicle.

We will now consider the six varieties of hernia that may be met with in young children, the first being complete vaginal hernia. This is characterised by the persistency of the entire vagino-peritoneal canal, allowing the intestine to enter into the cavity of the scrotum in direct contact with the testicle. The neck of the sac is usually formed by a narrowing in the canal corresponding to the internal inguinal ring. The cord is placed below and somewhat behind the hernia in the canal, while in the scrotum it is found directly behind or somewhat within. The second form is funicular vaginal hernia and is characterised by the presence of a patent vagino-peritoneal canal, with obliteration of the serous membrane covering the testicle, so that a hernia coming down in this canal will be arrested in its progress by this obliteration, and consequently is not in contact with the testicle. The third type represents congenital hernia with undescended testicle, and is characterised by the production of a hernia with a testicle in ectopia. The fourth variety, inguino-interstitial hernia, is represented by the presence of the intestine in the inguinal canal and the testicle in the sac. The external ring, which holds back the testicle and the gut, is extremely narrow, while the inguinal canal itself may be enormously dilated. Preperitoneal inguinal hernia represents the fifth type, and here the rupture may come through the external inguinal ring and penetrate as far as the scrotum, while behind its inguinal prolongation is to be found a second one, situated in front of the peritoneum between it and the internal ring. The sixth and last type of congenital hernia is the so-called encysted hernia of the vaginal tunic. In this variety the sac projects into the cavity of the vaginal membrane, which surrounds it almost completely, although no communication exists between them.

Since the radical cure of inguinal hernia in children has become current the various operative techniques have multiplied, but it may be said that they all have this double end, namely the suppression of the hernia and the prevention of a recurrence. A careful study of the various procedures will show whether this end is attained, and in considering them we should examine those operations applicable for the radical cure of inguinal hernia in a child and those which have been employed in adults and also in young children. The various operative procedures which have been applied to children only are most dissimilar. In some the external ring is alone dealt with, while in others it is the internal ring, but they all present this particular peculiarity, namely of being less complex and more simple in execution than the procedures employed in the adult. The various surgeons

who have advocated these procedures insist more especially on the reasons which have guided them in simplifying the operation, viz. that in children the muscular layers are in excellent condition, the tendency to spontaneous obliteration of the canal and the very exceptional recurrence when one has simply done away with or obliterated the sac, which, generally speaking, is very supple and free from adhesions. From this arises the classification of operative procedures into those where the external ring is closed and in those where the internal ring is closed.

Of the former techniques we have the following. Kirmisson's operation is as follows: The obliquity of the canal exists, and it is especially the external ring which presents an abnormal size, while, on the other hand, the neck of the sac is supple and thin, and can be drawn down with the greatest ease, so that without slitting up the inguinal canal in its entire length a ligature may be placed very high up on the peritoneum. For this reason Kirmisson believes that it is quite sufficient to apply the ligature as high as possible, and then to narrow the external ring by suturing the pillars. The results that he has obtained in infants have appeared to him quite as good as the more complicated methods. He proceeds as follows: An incision from 5 to 6 centimetres in length is made over the inguinal canal, consequently extending from above the external ring and ending at the apex of the scrotum. By this incision the aponeurosis of the great oblique is exposed. The fibrous sheath, in the midst of which is found the sac, being split open, the former is picked up with forceps and drawn forward. When the sac has been freed a gentle traction is made so as to bring it down and to allow one to place the ligature as high as possible. After this has been done the pillars are sutured with silk, and the operation is completed by closure of the cutaneous incision with silkworm gut.

Félizet's procedure consists in a transversal incision of only a few centimetres length over the apex of the scrotum, and is made here on account of the very slight blood-supply. The sac is dissected out, ligated, and excised as high up as possible, while the operation is completed by a suture *en masse* of the external inguinal ring. This authority advises the use of very fine metallic sutures for the pillars, and has been very well pleased with his results. Froelich makes an incision 5 centimetres in length over the external ring and then dissects out the neck of the sac without opening it, after the contents have been reduced into the abdomen. When the neck of the sac is freed it is caught in clamps and drawn outward. The left index finger is then introduced into the ring in order to guide the needle with the

sutures as well as to protect the cord, which can be felt perfectly against the lower wall of the ring. Obliteration of the peritoneal neck is made by passing a suture, including both pillars, and going through the neck. No drainage. Russell has upheld that it is quite enough to remove the sac in children, believing that the suture of the abdominal wall or the pillars is useless, since the hernia is due to the presence of a congenital sac which, in the large majority of cases, is a non-obiterated portion of the inguino-peritoneal process.

We now come to the consideration of an operative procedure having for result the closing of the internal ring which has been performed twenty-five times by Gaudier. In its essentials it consists in a high external incision, which allows the exposure of the internal inguinal ring, and then, the sac having been resected and the stump properly treated, the internal ring is alone closed without splitting open the inguinal canal and without dealing with the external ring. The internal ring represents a slit whose borders are spread apart by the passage of the cord or the round ligament between them. The internal border is projecting, and frequently represents a crescent with the concavity looking outwards, the points becoming lost insensibly below and downwards. The external border is not well marked. The borders are composed of a fibrous process, having a variable importance, and Cooper upheld that the external border was the strongest, while Cloquet taught the contrary. Others have thought that both these authorities were correct, the question merely depending upon the particular subject examined. When the fibrous tract of the iliopubic band extends as far as the internal ring, the external border will be much the stronger, and this is easily ascertained by introducing the finger through the opening; but generally this band remains below, so that the internal border, which is almost always reinforced by a few vertical fibres, will be found stronger than the external. This opening measures from 12 to 15 millimetres in length, and is situated 15 millimetres above the crural arch according to Tillaux, while Blaise has found it higher up, usually from 18 to 20 millimetres, taking as a landmark the upper part of the cord. According to Cloquet the internal border is found 50 millimetres from the pubic spine in the male and at 52 millimetres in the female.

The technique is briefly as follows: The first landmark is the middle of the femoral arch, and the incision should be made about a centimetre above and parallel to it, starting at about 3 centimetres outside the landmark, and extending beyond it for only half a centimetre. The cellular tissue being next cut through, the vessels are

tied off and the aponeurosis of the great oblique is exposed and incised, after which the femoral arch is sought for. This is facilitated by the presence of the genital branch of the great abdomino-genital nerve on the great oblique. The small oblique and the transverse are next incised, and inwardly, at the bottom of the wound, the falciform fold of the fascia transversalis is seen, while outwardly will be found the elements of the cord and the hernia sac united in a common sheath. It is at this point that dissection of the sac is proceeded with.

Division of the elements of the cord at the internal orifice renders dissection easier, because they are reflected downwards over the edge of the peritoneal opening, while the sac takes on an upward oblique direction. An incision made in the fibrous sheath covering the sac and the cord allows one to quite easily isolate the former by searching as high up as possible, far away from the internal ring, and near to the point of formation of the sac. All this should be carried out with great care, because the sac is thin and easily torn.

The dissection is carried upward as far as the commencement of the vagino-peritoneal canal, and then is continued downwards, after having caught up the borders of the ring with clamps, which act as guides. Before continuing the dissection as far down as possible both the cord and testicle are drawn up in the wound out of the inguinal canal, and then the dissection is continued and the sac isolated and ligated in the neighbourhood of the testicle, after which the serous membrane covering the organ is closed. The intermediary segment of the vagino-peritoneal canal, comprised between the internal ring and the testicle, is then resected.

I have already referred to ligation of the lower part of the sac, which is accomplished according to the usual way, but the mode of closing the peritoneum above should be given in some little detail. The originator of this method does not simply apply a ligature to the sac as in most of the procedures advised, and he points out that the various manners of closing the peritoneal cavity are defective inasmuch as they produce an infundibuliform condition of the peritoneum. Now, this defect can be avoided by suturing the circular peritoneum opening which results from the resection of the sac in such a way as to transform it into a transversal line. The sutures being linear, no trace of an infundibulum occurs, consequently there is no starting-place for a new hernia.

The internal ring now remains to be closed and represents a very important part of the operation. The fascia transversalis is caught up and brought in contact with the femoral arch, thus closing the

internal ring, while a careful running suture unites the elements of the cord, the small oblique, and the transversalis with the crural arch. The aponeurosis of the great oblique is sutured over this, so that it reinforces the wall, and the operation is completed by a closure of the skin-incision, with or without drainage.

We now come to the consideration of the operative procedures used in the adult and which have also been applied to children. I shall be content with a rapid enumeration, because they present nothing special, and the only thing that need be said is that their intricacy may be rendered still more difficult in the child than in the adult on account of the thinness of the walls of the inguinal canal and the friability of the sac. The procedure of Lucas-Championnière consists in making a long incision, starting at the top of the scrotum, at a point directly above the peritoneal opening of the inguinal canal. The aponeurosis of the great oblique is exposed, opened up between two clamps, and then the sac is sought for in the midst of the elements of the cord. When it has been exposed it is opened and dissected out, the dissection being carried far above the neck of the sac until the sub-peritoneal fat is seen. When the pedicle of the sac has been carefully freed and closed a double catgut ligature is passed and a chain ligature made. The ligature is cut and the stump is immediately reduced into the abdomen. The anterior wall of the inguinal canal is then repaired by overlapping the borders of the aponeurosis of the great oblique by a series of U-shaped catgut sutures, which are reinforced by a few sutures above and below, after which the skin is closed with silkworm gut.

Barker's technique consists in isolating the sac, forming a pedicle of it, and including this in a very tightly tied ligature, after which the sac is removed. Then, passing a needle in which one of the ends of the ligature on the pedicle is inserted, it is carried into the sub-peritoneal fat and through the abdominal wall. The same is done with the second end of the ligature, which is carried through the abdominal wall at another point and then the two ends of the ligature are tightened in order to pucker up the sac which is pulled upwards and held in place, when the two ends of the ligature are tied. The pedicle is thus fixed over the internal ring and projects into it, so that, filling it up, it prevents the intestine from entering into it. The operation is completed by uniting the walls of the inguinal canal by a few sutures.

Ball's procedure consists in making a torsion of the sac, after being assured that it is empty. Seizing it with a pair of clamps, it is turned upon its axis, usually four or five turns being enough, and

then a heavy ligature is placed round the neck. Two sutures are then passed through it comprising the pillars which maintain the torsion of the pedicle, the body of which is removed just below the ligature. The tension of the peritoneum produced by the torsion is, according to the author of this procedure, sufficient to efface any depression in the peritoneum above the ring.

Instead of removing the sac after isolating it Macewen puckers it by passing from below upwards to the neck a ligature, which is also brought from behind forwards through the aponeurosis of the great oblique, to which it is ligated. After this has been done the inguinal canal is reflected, giving to it its oblique direction. A ligature whose loop is in the subperitoneal fat is carried through the aponeurosis of the transversalis just internal to the internal ring and then the two ends of the ligature are brought into the inguinal canal in front of the cord. Both ends of the ligature are brought through from behind the great oblique forwards, a little above its insertion on the arch of Fallopius, and are tied in this point. Of Bassini's operation I shall say nothing as the technique is too well known, but in Mugnai's procedure the muscles and aponeuroses are dissected just as in Bassini's operation, while the cord, instead of being laid over, is pushed behind them in the midst of the properitoneal fat, between the fascia transversalis and the parietal peritoneum. The three layers are then sutured to the posterior border of the arch of Fallopius, while the aponeurosis of the great oblique is sutured to its anterior border, so that the cord passes out through an opening left for it. Aguilard has taken up the latter technique, and the principal idea of the operation which he performs is to make over the abdominal wall in such a way that it will be sufficiently resistant against visceral impulsion; and in order to accomplish this he does away with the internal ring and the intermuscular portion of the inguinal canal by fixing the cord to the parietal peritoneum and narrowing the external ring down to its normal dimensions. Contrary to the operations which have just been described, Halsted brings the cord out through the upper angle of the incision—in other words, bringing this organ through the thickness of the abdominal wall from behind forwards in the region of the internal ring and then the entire inguinal canal is closed behind it with sutures; the aponeurosis of the great oblique, which has been incised so as to bring the cord outside, and the external ring are then closed by sutures, leaving the cord running under the integuments from the upper angle of the incision down to the scrotum.

Broca makes an oblique incision of the skin over the inguinal

canal without reaching the scrotum, and then the aponeurosis of the great oblique is incised to the extent of three or four centimetres. The sac is thus exposed along with the cord or the round ligament. In the female the sac and round ligament are raised up and by traction the cul-de-sac which penetrates the labium majus is pulled out, and after this has been done the epigastric artery is distinctly seen, at which point the sac is tied off, having previously been opened in order to see that no gut or omentum is caught. It is also pulled outward as far as possible so as to place the ligature high up on the peritoneum within the abdomen. In the male the cord is pulled up and then the posterior wall of the canal is exposed, likewise the epigastric artery. The sac is then isolated and if it is looked for at the base of the cord in the beginning, it will always be found. The dissection is carried up until the sub-peritoneal fat is exposed and then the bladder can be seen. To close the canal three or four sutures are necessary, including the entire thickness of the wall and passing out in front of the cord. The suture of the skin without drainage completes the operation.

Kocher does not incise the anterior wall of the canal, and when the sac has been freed a small incision is made in the aponeurosis of the great oblique just within the internal ring, and through this opening he introduces a pair of clamps with which the sac is caught and brought through this small incision. It is then sutured in this position with a ligature inserted through the pedicle. Le Dentu first isolates the sac as is done in Bassini's operation and then treats it as in Kocher's operation; that is to say, a small incision parallel to the long axis of the inguinal canal is made in the great oblique just above the level of the internal ring, through which a pair of clamps is introduced down along the inguinal canal. The sac is then grasped and is pulled completely through the small incision. The sac is then put on the stretch and sutured by a few points. Now, without splitting the aponeurosis of the great oblique, the finger is then introduced into the canal to be used as a guide and a large U-shaped suture is inserted perpendicularly. He thus plugs the inguinal canal by tissues, and in order to hold this in place he catches up the apex in all the sutures which are used for closing the skin-incision.

Having now considered the various techniques, I come to my conclusions, namely that in cases of simple hernia with a descended testicle, one may resort to simple procedures without opening the inguinal canal, but always resecting the sac as high up as possible. All the procedures employed for the adult may be used

in a child, but according to my way of thinking, Bassini's operation is by far the best, especially when the testicle is undescended. Since my paper referred to at the beginning of this article I have had more ample experience to demonstrate its utility in infants and young children, and I must confess that I am unable to see how anything can be more simple, rapid, and perfect if care be taken in carrying out a perfectly aseptic technique. By proper dressings the incision will not be soiled by the urine and a radical cure may be expected.

CASE OF CALCULUS IN URETER AND SEPSIS. *

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THE occurrence of renal lithiasis in infants is so frequent that it is recognised as having a physiological basis; it is believed to be associated with the change of metabolic processes occurring at the period of birth. In the kidneys of newly-born and young infants deposits of granular urates may be seen lying in the collecting tubules of the medulla, and presenting *en masse* a fan-shaped appearance of reddish-yellow streaks. Clinical authorities are agreed that with proper hygienic and dietetic care such deposits have no pathological significance. Henoch has pointed out that the natural fluid nourishment in proper quantity suffices to flush the kidneys free of these elements, but he further insists that in the absence of such natural flushing the deposits may become the nuclei of concretions which may later give rise to serious disturbances by becoming impacted in the narrower channels of the urinary passages; he has observed calculous formations varying in size from reddish sand crumbs in the pelvis of the kidney to a stone the size of a fowl's egg in the bladder. Emmet Holt ("Inanition Fever in the Newly Born," Amer. Ped. Soc., 1895) has described a form of malnutrition associated with fever and the presence of urinary lithiasis; the disturbance appears within the first four or five days of life, and he attributes it to defective nourishment, and considers it remediable when proper hygienic and dietetic measures are adopted.

* From the "Kinderheilanstalt, Dresden," under the direction of Dr. Fritz Förste

Jacobi and Crandall ('Arch. of Pediat.,' March, 1899) believe that the presence of uratic deposits in the pyramids may, if not early cleared away, give rise to a form of nephritis. Blumenthal describes a case of albuminuria in an infant coincident with the presence of reddish-yellow sand in the urine; there were no tube-casts, blood, or renal epithelial cells. J. Comby in an exhaustive article on the subject ('Archiv des Méd. des Enfants,' October, 1899) has given the result of 600 autopsies on children in which he found 100 cases of urinary lithiasis, while in the same series there was not a single case of biliary lithiasis. Out of these 100 cases there were 48 which showed the presence of sand or calculi outside of the kidney substance, and these cases he describes, and analyses the conditions with which they were each associated. Out of the 48 cases 46 were under one year and 28 were under six months; 41 cases had been nourished on artificial diet and reared in poverty and misery. During hospital residence the majority of the cases suffered from alimentary disturbance—29 cases had diarrhœa, 24 vomiting, and 4 constipation; in 14 cases emaciation was extreme, while in 25 there was loss of weight during the period of observation. In a large majority of cases the stomach was found post mortem to be dilated, and in six cases there was gastric ulceration. In 22 cases the liver was enlarged and showed yellow mottling and in 7 cases the spleen was enlarged. In addition to alimentary disorders these infants were in many cases the victims of other changes; in 36 cases there was evidence of pulmonary inflammation, in 17 erythema of the buttocks, and in 5 multiple abscesses. It is important, then, to note that the condition was found in association with emaciation, gastro-enteritis and broncho-pneumonia. As regards the lithiasis itself, it is interesting to note that in the 48 cases (1) in 12 cases the kidney was the seat of sand or gravel; (2) in 30 cases the kidney was the seat of true calculi; (3) in 4 cases there were sand particles or calculi in the ureters; and (4) in 17 cases there was sand or gravel in the bladder. It is important to note that in the great majority of the cases the presence of sand or calculi determined no further local organic lesion. Out of the 48 cases there were 2 cases of pyelitis, 4 cases of hydronephrosis, 1 case of pyonephrosis, and 2 cases of thrombosis of the renal veins. According to the author hydronephrosis may be slight or the ureter may be distended so as to resemble intestine; he further suggests that complication is predisposed to by congenital malformation (strictures or abnormal openings), but adds that renal lithiasis is well tolerated, and does not as a rule complicate itself with inflammatory lesions; hence

the comparative absence of symptomatology. With regard to symptoms he says that in cases of emaciation and dehydration the condition may be suspected, and the suspicion may be enhanced when grains of sand or uratic dust are found in the linen; the child may cry as if from colic, and if this restlessness accompanies micturition the suspicion is even greater. The fever described by Holt is in the cases of young infants an important sign. When, however, an impacted calculus gives rise to retention, or acute inflammatory conditions set in, a new series of symptoms supervene; thus suppurative pyelitis, pyonephrosis, cystitis, or grave dysuria occasion disturbances which are likely to lead to more definite interpretation. Although there is no case in the series recorded by Comby which presented clinical signs pointing definitely to urinary complication, there are others in the literature which in this respect are interesting and important. Mikhaïloff reports the case of a girl, aged 12 years, who suffered from dysuria from the age of three; the removal of a urethral calculus resulted in complete recovery (*Archiv des Méd. des Enfants*, 1898, p. 309). Kutner reports the case of a boy, aged 13 years, who suffered from incomplete retention of urine from the age of three; complete recovery followed the removal of a stone from the bulbous portion of the urethra (*Berlin. klin. Woch.*, 1897). Clement Lucas had a case of a boy, aged 11 years, who had suffered from loin pains and attacks of colic for eight years; operation revealed a hydronephrosis and dilated ureter resulting from impaction of an elliptical stone two inches below the kidney; the boy was dismissed well sixteen days after removal of the stone (*Brit. Journ. Child. Dis.*, December, 1905). Such calculi as these are not improbably the result of early concretions which were not washed out of the urinary tract after birth. The following case is interesting and important in so far as it presented no clinical symptoms pointing to urinary complications, yet on post-mortem examination it was seen that a small calculus impacted in the left ureter had given rise to local disturbances which must in some degree have contributed to the fatal issue.

A. Z—, aged 1 year 5 months, was admitted into the Sick Children's Hospital, Dresden, on March the 5th, 1906. The child did not live with his parents, and it is impossible to get an accurate history of his condition. The symptoms which necessitated his removal to hospital were those incident to an acute inflammatory condition of the eyes, which was said to have begun fourteen days before admission. At first the eyes were seen to be red and swollen, and after two or three days they remained closed; there was a slight purulent

discharge; during this period the child was very fretful and lost flesh.

Previous health.—Except during the first three weeks, nourishment has been artificial; the teeth have appeared irregularly, and he has not yet walked. There is no history of previous illness or of infectious disease.

Family history and social conditions.—His parents are dead, and he has not been reared under conditions conducive to health.

Condition on admission (March the 5th, 1906).—He is ill-nourished and poorly developed, the skin is dry and rough, and the subcutaneous fat is small in amount. The skull has a rhachitic conformation, there is an obvious “rhachitic rosary” on the chest, and the epiphyseal junctions of the long bones are thickened. The hair is thin and in small quantity; the large fontanelle is still very wide; there is an eczematous condition of the skin behind each ear. In both eyes the conjunctivæ are deeply injected, and have an hazy appearance in the region of the corneæ; on the left side there are several minute hazy points on the cornea, covered with thick purulent exudate.

The chest is of a rickety shape, it moves freely and equably with respiration; the percussion note is resonant over the pulmonary area, except at the left base behind, where there is a small area of relative dulness, over which the respiratory murmur is deficient and is accompanied by abundant crepitant râle; over the right base the respiratory murmur is also deficient, and there is occasional crepitant râle; over the rest of the pulmonary area the respiratory murmur is full, and though accompanied by occasional mucous râle, shows no evidence of consolidation. There is no cough, and the respirations, which are easy, number 30 per minute. The upper border of cardiac dulness is marked by the second intercostal space, the left border by the nipple line, and the right border by the left sternal border. The cardiac sounds are distinct, and are not accompanied by murmur. The pulse is regular in force and rhythm, is small and easily compressible, and numbers 120 per minute. The abdomen is somewhat retracted; there is no evidence of tenderness; the liver reaches a finger's-breadth below the costal margin; the spleen is not palpable. His weight is 12 lb. and temperature 100° F.

March the 6th.—Patient has been fretful and restless; he has taken very little nourishment, and there is diarrhœa. Urine for examination purposes cannot be obtained. The condition of the eyes has become worse, and to-day there is a deep ulcer on the left cornea. Bacteriological examination of the discharge shows the

presence of a short, thick bacillus, whose cultural and staining properties correspond to those of the Koch-Weeks bacillus.

March the 7th.—His condition has become worse. The inflammatory conditions of the eyes has resulted in a prolapse of the iris in both eyes. The physical signs in the lungs have not changed; the pulse is very weak, and at times scarcely perceptible. Over the lower extremities and lower part of the abdomen are numerous cutaneous, punctiform hæmorrhages.

March the 8th.—Patient died to-day. Last night the temperature registered 103° F. and the pulse was not always perceptible.

Autopsy (by Dr. Oppe, March the 9th, 1906).—The body is that of an ill-nourished and poorly developed child. There is an absence of subcutaneous fat. There are several small, cutaneous hæmorrhages, chiefly in the region of the hip-joints; the muscles are pale, and post-mortem rigidity has not quite passed off.

Head.—The large fontanelle measures $3\frac{1}{2}$ by $2\frac{3}{4}$ cm. The dura mater shows no abnormality; the large veins contain clotted blood. The brain is generally soft and œdematous; the ventricles are not enlarged.

Chest.—The pericardial layers are smooth, and the sac contains a small quantity of clear yellow fluid. The heart is small and flabby, and the muscle is pale; the chambers contain small quantities of fluid blood, and are not distended; the valves are normal. The large vessels in the thorax appear normal. There is slight swelling and injection of the tonsils, but otherwise the throat and larynx are normal.

There is slight pleural adhesion at the bases of both lungs, and both lungs show fibrinous exudate on the pleural surfaces in these regions. The upper lobes and the anterior aspects of the lower lobes are pale and expansile and in some parts emphysematous; the posterior aspect of both lower lobes shows numerous small areas of collapse and consolidation; the cut surface shows the areas of consolidation to be confined mostly to the posterior aspects of the lower lobes; the larger bronchi are deeply injected, the smaller bronchi are slightly distended, and from the minute bronchioles small drops of pus can be expressed. The bronchial glands are large, soft, and red.

Abdomen.—The peritoneum appears normal. The liver reaches a finger's breadth below the costal margin; it is pale, with scattered areas of greater pallor. The spleen is small and of firm consistence and the follicles are very apparent.

The left kidney is somewhat larger than the right; the capsule is non-adherent; the cut surface is pale and evenly coloured; the pelvis is slightly enlarged and its wall is pale and smooth. The

right kidney is somewhat smaller, capsule non-adherent, cut surface pale and regularly coloured; the pelvis is not distended, and it contains a small quantity of turbid fluid.

In the left ureter $1\frac{1}{4}$ inches from the bladder there is an impacted renal calculus which is about the size of a split pea of a yellow colour, with an irregular surface and of firm consistence; the mucous membrane in its immediate neighbourhood is ulcerated and has a dirty grey appearance; the stone appears to lie free in the ulcerating cavity; the ureter is not distended and contains no fluid; the mucous membrane is red, but glistening in the rest of its extent. The right ureter appears normal. The bladder contains a small quantity of urine, but no calculi, and its mucous membrane is normal. The stomach is distended; the mucous membrane is deeply injected and shows in parts minute hæmorrhages, and is in parts covered with viscid mucous secretion. The wall of the ileum is in parts very thin and the mucous membrane reddened. The mesenteric glands are small and pale and of firm consistence.

Eyes.—There is deep ulceration in the corneal region of both eyes, with prolapse of the iris.

Microscopic examination.—In the left kidney there is marked cloudy swelling of the epithelial cells of the urinary tubules, with desquamation. The cells of the convoluted tubules show a high degree of fatty change; several areas show infiltration of round cells. There are bacilli and cocci in abundance. The right kidney shows likewise a considerable degree of cloudy swelling.

Examination of the lungs shows there a general bronchitis, with area of collapse and lobular infiltration; there is also a considerable degree of sub-pleural hæmorrhage.

The stomach and ileum show desquamation of epithelium of mucous membranes, with considerable round-cell infiltration of the mucous and sub-mucous layers. The glandular epithelium is in part desquamated, and where present is often swollen and indistinct.

Bacteriological examination.—Cultures from the spleen remained sterile. Cultures from the left kidney showed the presence of a small bacillus, four times its breadth in length, and Gram negative. The gelatine streak consisted of whitish, round, liquefying colonies. The gelatine stab consisted of a profuse growth in the gelatine, and a large flat growth on the surface, with liquefaction. The agar streak consisted of round, whitish, flat, shining colonies, tending to run together. The milk medium was curdled. The fermentation test was negative. The bouillon culture left the medium slightly hazy with a profuse deposit.

Conclusions.—In our review of the literature on the subject we recognised that the condition of renal lithiasis is met with in children in forms which vary greatly in gravity. (1) In very young infants the deposits of urates in the collecting tubules have no grave significance if proper hygienic and dietetic measures are adopted. (2) If, however, the child is badly cared for, and the food is insufficient in quantity and quality, particles of this uratic dust are left behind and form the nuclei of calculi; these calculi are, fortunately, not often the immediate cause of serious trouble, and are, in the great majority of cases, only discovered when the patient has succumbed to the influence of some other disease. (3) It does occasionally happen that such small calculi, becoming impacted in the narrower channels of the urinary tract, give rise to symptoms of a definite character and requiring definite treatment. In our observation, while no definite clinical clue was present, there was undoubtedly a serious disturbance occasioned by the presence of the calculus in the left ureter. In many respects the antecedent history of the patient had much in common with that of those reported by Comby. The child was rickety, ill-nourished, and ill-developed, the victim of inadequate alimentation and physiological misery. When he came under observation he was the subject of a severe inflammatory condition of the eyes, in the discharge from which a definite organism was found (Koch-Weeks bacillus). In addition to the eye trouble there was pulmonary and alimentary disturbance. The post-mortem examination, while proving the presence of broncho-pneumonia, gastritis, and enteritis, revealed also the presence of a stone in the left ureter, lying free in an ulcerating cavity. Bacteriological examination of the kidney substance on the left side showed the presence of large numbers of bacilli, which in cultural and staining properties corresponded with the bacillus found in the secretion from the eyes (Koch-Weeks). The history of our case would, then, appear to be: A child reared in poverty and poorly nourished is the subject of acute inflammatory condition of the eyes; this, in such a child, is readily complicated by broncho-pneumonia and gastritis. A small calculus is lying in the pelvis of the left kidney or in the ureter, but it has no evil effects so long as the child is in comparatively good health. When, however, the body has become reduced by other conditions, the region of the calculus is readily irritated by its presence and becomes the site of a new inflammatory condition. Interesting it is to find that the same micro-organism was an active agent in the eyes and in the ureter and kidney.

In conclusion, I have pleasure in acknowledging my great in-

debtedness to Dr. Förster, who has provided me with the material for this paper, and in addition to affording me access to the literature on the subject, has assisted me in many ways.

A NOTE ON THE SIZE OF THE SPLEEN IN RICKETS.

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IN his classical 'Lectures on Rickets' Sir William Jenner paid much attention to the visceral changes which might occur in that disease. He stated that the lymphatic glands and the spleen might be much enlarged, and that these changes were usually associated with extreme emaciation and anæmia; and he separated this rachitic enlargement, which he termed "albuminoid infiltration," from amyloid disease. It had long been known that the viscera might be increased in bulk in rickets; Whistler, Glisson, and Bright had already drawn attention to the fact, although their observations seem to have escaped general notice; but Jenner's lectures made the knowledge widespread. And, six months later, he published full clinical and pathological details of two more cases which had been under his care. Nine years later Dickinson published the details of four cases which he had observed, and described the microscopical appearances of the affected organs, making it clear that the changes found were due, not to the presence of any formation foreign to the structures of the viscera, but to an irregularity of growth which altered the normal proportions of their tissues; the condition, he thought, was neither amyloid nor Hodgkin's disease, but *sui generis*.

In the course of an investigation with which we are at present engaged, it became imperative to ascertain the exact relationship of enlargement of the spleen in rachitic children to the disease itself, but we were unable to obtain from the literature any precise information on this point, authorities differing in their opinions as to both the frequency of its occurrence and its relationship. Sir W. Jenner gives little help in this matter; he was emphasizing the general character of the disease, and that all the tissues of the body might be abnormal, and he only cited typical cases in point. Dickinson's observations were of a similar kind, and both authors were describing the morbid appearances found in a disease which it is notorious, if uncomplicated, rarely causes death. Later writers are equally unsatisfactory.

Trousseau stated in his 'Lectures' that the liver and spleen were not enlarged in rickets, though they might often be felt projecting beyond the margins of the false ribs. Their prominence, he thought, was due to thoracic deformities which pushed them down into the abdomen. Henoch declared that he had been unable to make out any splenic enlargement "in the very great majority of the rickety children whom he had examined," and that the occurrence of enlargement of the spleen along with rickets (especially when very great) was merely fortuitous. Dr. Eustace Smith states that alterations in the size of the liver, spleen, and lymphatic glands are "only present in exceptional cases," though the former are not infrequently pushed downwards and so easily felt in the abdomen. Dr. Cheadle thinks that no enlargement takes place, save in comparatively rare instances. Dr. George Carpenter states that the spleen is not enlarged in the great majority of rachitic children, and thinks that any increase in size in these cases must be considered an epiphenomenon.

On the other hand, according to Dr. Osler, the spleen is often enlarged and readily palpable. Dr. Holt considers that the spleen is enlarged in most cases, the increase being usually moderate in degree. Drs. Ashby and Wright state that it is enlarged in many cases, though certainly not in all.

Dr. R. Hutchison thinks that the spleen is not appreciably enlarged in more than 5 per cent. of cases.

Opinions also differ as to the relationship of the splenic enlargement when it is present. Almost all observers state that the increase in size is most noticeable in children who are emaciated and anæmic, and it is probable that some of the older cases would have shown the blood changes characteristic of splenic anæmia. Some writers consider that splenic enlargement, when present, is of syphilitic origin, but this, again, is elsewhere denied.

The following table shows the result of our examination of 417 consecutive cases of rickets at the dispensary of the Royal Hospital for Sick Children. As the age indicates, every stage of the disease was represented, some of the older children making complaint of the bony deformities alone, but the large majority were seen during the active stages of the disease. "Spleen palpable" indicates that the organ could be felt on abdominal palpation.

Trousseau's contention that the spleen may be felt beyond the ribs in cases of chest deformity, without being enlarged, cannot be easily dismissed. In only eight of our seventeen cases were we definite that the organ was really enlarged, and in five of these

cases the thoracic deformity was considerable. In two cases alone was the enlargement notable; in one of these, examination of the blood revealed the changes characteristic of splenic anæmia; the second case was suffering from measles and died during the attack. During the same period we have seen seven cases of splenic anæmia, only one of which showed evidences of rickets.

It seems improbable that splenic enlargement is merely an incident of rickets, when the viscus is only palpable in less than 5 per cent. of cases. In our opinion notable enlargement of the spleen in rachitic children is the result of causes other than rachitic, the most common of which are splenic anæmia and congenital syphilis.

	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years
Cases examined	20	156	126	69	26	11	6	1	2 = 417.
Spleen palpable	1	8	4	2	1	0	0	0	1 = 17 = 4·07 per cent.

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TWO CASES OF ACUTE POISONING, (1) BY PHOSPHORUS, (2) BY COCAINE.

By B. J. COURTNEY, M.D.

THESE two cases appear to be worth recording not on account of their rarity or of any unusual symptoms which occurred, but because in the first case, that of phosphorus-poisoning, the history seems to point to a definite line of treatment that should be pursued in such

cases, and in the second, that of the cocaine-poisoning, on account of the very minute amount of the poison that produced the symptoms recorded.

(1) *Phosphorus-poisoning*.—The history in this case is that of a girl aged 12 years, whose previous health had always been good, who took ill, complaining of pain, not very severe, in “the pit” of the stomach, and vomited two or three times; when she was questioned by her mother as to whether she had eaten anything to disagree with her she said she had been sucking matches; the number of matches sucked or the reason why she sucked them were never elucidated. The matches used were of the ordinary red variety ignited by friction.

With the exception of the symptoms stated above, which seem to have been by no means marked, there was nothing as far as can be ascertained to indicate that the case was of a serious nature; the mother, however, appears to have been alarmed at the story of the matches, and she, therefore, took the child to a hospital, where a mixture of a purgative nature was prescribed and the mother directed to bring the child again in a week. For the next five days the child was able to be up and about, and the only symptoms which were noticed consisted in slight pain in the region of the stomach, loss of appetite, and a tendency to drowsiness. On the sixth day I was sent for on account of the increasing drowsiness, accompanied by convulsions. When I saw her the child looked extremely ill, the eyes were sunken, the skin moist and clammy, and she had a pulse of 120, which was small and soft. There was slight but distinct jaundice present in the skin of the face, thorax, and abdomen, and the conjunctivæ were markedly yellow. The patient was having frequent convulsions and it was extremely difficult to rouse her sufficiently to answer questions; as far as I could ascertain from her, however, she made no complaint except of slight cramp in the legs. The liver appeared to be enlarged; it was impossible to obtain any urine for examination at the time.

The patient rapidly passed into a state of coma and died a few hours later.

At the subsequent post-mortem examination it was found that there was a considerable amount of inflammatory redness and hæmorrhagic erosions of the mucous membrane of the stomach and duodenum; there were no ulcers. The liver was slightly enlarged, yellow in colour, and greasy to touch; the cells of both the liver and kidneys showed advanced fatty degeneration on microscopical examination. The point in the treatment, which I referred to above, that appears

to be illustrated by this case is that no history of match-sucking or other means of taking phosphorus, however indefinite, ought to be discounted, whether there are any symptoms to support the story or not, because in phosphorus-poisoning there may be no symptoms, or only very slight symptoms, for several days after the poison has been taken—a fact to which, I think, far too little attention has been drawn—and once the poison has been absorbed sufficiently to produce interference with the interchange in the tissues of oxygen and carbonic acid, no treatment is of any avail, and the patient is certain to succumb provided sufficient of the poison has been taken.

The indication, therefore, is that whatever line of treatment is favoured, whether washing out the stomach with permanganate of potash, or giving emetics, or administering turpentine, or other ways that may occur, it should be adopted at once, as soon as the case is seen, however uncertain the history, and whether symptoms are present or not.

(2) *Cocaine-poisoning*.—This case is that of a boy aged 2 years, who had recently suffered from a mild attack of catarrhal laryngitis; except for a similar attack some months previously, he had enjoyed the most robust health from birth.

The laryngitis mentioned above was followed by a subacute pharyngitis and uvulitis, and these conditions produced a most irritable and constant dry cough, which was most annoying, not only to the child, but to those who were compelled to constantly listen to it.

In order, therefore, to alleviate this cough the fauces and pharynx were painted with a 5 per cent. solution of cocaine; this was only done twice, the second time being an hour or so after the first.

Within an hour after the second application the child began to show acute nervous symptoms—incessant and incoherent talking, almost bordering on delirium, playing with a set of dominoes in an excitable, objectless fashion, and most intense sleeplessness.

In addition to these symptoms, there was considerable dilatation of the pupils, and there appeared to be slight anæsthesia of the skin.

The cardiac and respiratory systems were unaffected.

The symptoms recorded persisted most acutely for six or seven hours and finally yielded to 5-gr. doses of bromide of potassium along with 2 gr. of chloral hydrate, given every two hours. When the child woke up in the morning he appeared to be in his usual health and no ill effects were afterwards observed.

It is unfortunate that I do not know the exact amount of the 5

per cent. solution of cocaine that was used altogether, but it is obvious that the amount of cocaine from such a solution, applied only twice in the manner indicated with an ordinary throat brush, must be very small.

Although I think this particular child showed a distinct susceptibility to cocaine, yet in view of the very persistent nervous symptoms which may follow cocaine-poisoning, such as muscular tremors, insomnia, giddiness, etc., and which appear to point to actual damage of nerve-cells, the symptoms which supervened in this case after so small a dose of cocaine tend to make one particularly careful in the use of the drug for children.

NOTES ON A CASE OF ACUTE OSTEOMYELITIS OF THE SPINE IN AN INFANT.*

By GEORGE CARPENTER, M.D.,

Physician to the North-Eastern Hospital for Children, and Membre Correspondant de la Société de Pédiatrie de Paris.

IN Vol. V of the 'Reports' of our Society will be found a paper on "Acute Osteomyelitis and Periostitis of the Spine" by Mr. A. H. Tubby, which was read at the provincial meeting at Sheffield last year, and when dealing with this rare condition he reviewed the literature of the subject. It would appear that the disease has received but little attention in this country, but contributions have been made by Ballance, Lucas, Makins and Abbott, and others. There appear to be several varieties of the affection, varying from periostitis without baring of the bone and attended by perfect recovery to a state which is extremely dangerous to life, where suppuration takes place in the bodies of the vertebræ, the processes are laid bare, and spinal meningitis is apt to occur. The case which I am about to relate is an example of the acute variety, and is of interest owing to the tender age of the child.

Dinah da Costa, aged 1 year and 3 months, was admitted into the North-Eastern Hospital for Children, under the care of Dr. Carpenter, on October the 20th, 1904. The mother complained that the child was wasting, and had been very fretful and feverish for the past two weeks. She was a breast-fed baby, and had thrived on the breast until the onset of the present trouble, when she was weaned,

* Read at the Provincial Meeting of the Society for the Study of Disease in Children, Oxford, on Saturday, June the 23rd, 1906.

but gradually became worse. She had been perfectly well until the present illness. Of nine children, seven were healthy, and one died of "bronchitis." The parents were both healthy. There was no history of tuberculosis in the family.

On admission.—The child looked very ill, she was anæmic and somewhat wasted. The temperature was 101° F., the pulse-rate 140 to the minute, and the respiration-rate 52 to the minute.

Both sides of her chest worked equally well. Cry-resonance and cry-fremitus were diminished over the lower part of the left chest behind. There was some dullness at the extreme left base, and the breath-sounds in this region were very faintly heard. In front and below there was marked tubular breathing. The position and sounds of the heart were natural.

There was a general fulness and prominence of the abdomen. In the left loin a large, smooth, rounded, and fluctuating swelling could be made out, moving slightly with respiration and dull on percussion. The mass was very tender, and the child cried out a good deal, making it somewhat difficult to define its exact limits.

The urine was of specific gravity 1010, and contained no abnormal constituents. She passed water naturally.

On October the 21st the temperature was normal, the respiration rate 44 to the minute, and the physical signs were unchanged.

On October the 24th the temperature began to rise again— 100.6° F. Chloroform was administered and a thorough abdominal examination made. Nothing abnormal could be felt per rectum, and no definite mass could be made out by abdominal palpation. There was merely a sense of resistance and a feeling of something abnormal in the left lumbar region. The temperature rose to 102° F. a few hours after the examination. The respiration became more rapid and the child cyanosed. She died on October the 26th.

Post-mortem examination.—The left pleura contained about two pints of purulent fluid. The right pleura was thickened. The left lung was collapsed, and its base was adherent to the diaphragm. The heart and pericardium were normal. In front and to the left of the spinal column, near the first, second, and third lumbar vertebræ, there was a quantity of pus which had separated the anterior common ligament from the vertebræ and occupied a cavity bounded in front by the left kidney, the posterior surface of which was excavated. This cavity communicated through a rounded aperture in the diaphragm with the left pleural cavity. The intervertebral disc between the first and second lumbar vertebræ had been completely destroyed, and the adjacent portions of the anterior

surfaces of these vertebræ were eroded. Microscopical examination of the pus showed streptococci and diplococci. No tubercle bacilli could be found. The salient points of this case are :

- (1) The extreme rarity of such cases.
- (2) The variation in the physical signs: (*a*) Signs simulating psoas abscess, together with signs of a small collection of fluid in the left pleura; (*b*) aggravation of the general symptoms, increase of thoracic signs, and lessening of the physical signs in the abdomen.
- (3) The communication of the two abscess cavities.
- (4) The nature of the micro-organisms found in the pus.

The Society for the Study of Disease in Children.

THE Provincial meeting of the Society was held at the Radcliffe Infirmary, Oxford, on June 23rd. Professor OSLER (Oxford) was in the Chair during the exhibition of clinical cases and pathological specimens, and Dr. W. COLLIER (Oxford) for the papers.

A Boy with Dislocation of both Patellæ outwards was exhibited by Mr. A. P. PARKER (introduced) (Oxford).

A Girl with a Solid Tumour of the Pelvis, probably Enchondroma, was exhibited by Mr. H. P. SYMONDS (introduced) (Oxford).

A well-marked Case of Achondroplasia in a Girl was exhibited by Dr. W. J. TURRELL (introduced) (Oxford).

A Child with Enlarged Liver and Spleen for diagnosis was exhibited by Dr. E. MALLAM (introduced) (Oxford).

Three Cases of Calf Ringworm were exhibited by Dr. E. MALLAM (introduced) (Oxford), and **Microscopic Specimens and Cultures from these Cases** were also shown.

Cultures of Ringworm from the Scalp and Nails were exhibited by Mr. GEORGE PERNET.

A Case of Lamellar Cataract, also suffering from ichthyosis simplex, was shown by Mr. P. H. ADAMS (introduced) (Oxford).

A well-marked Case of Cretinism in a child was exhibited by Mr. FINCH (introduced) (Oxford).

A Girl with Double Hernia of the Ovary, whose sister had suffered from the same trouble, and from whom one ovary was removed by operation

and reported at a previous meeting of the Society, was exhibited by Mr. R. H. A. WHITELOCKE (Oxford).

A Specimen of Congenital Malformation of the Intestines in a Full-time Fœtus was exhibited by Mr. C. P. PARKER (introduced) (Oxford). In this specimen the stomach was normal, but the duodenum was enormously distended and at the duodenal flexure there was complete occlusion of the tube of the gut, and the rest of the intestine lay in a corkscrew manner with a small mesentery.

Specimens of Cirrhosis of the Liver in a Child aged 10 years; Granuloma of the Brain with Nodules in the Lungs; and Tuberculosis of the Brain and Tumour of the Choroid Plexus were exhibited by desire of Professor JAMES RITCHIE (Oxford).

Numerous Anatomical Specimens were exhibited, (1) illustrating the Development of the Thymus at various Ages; (2) the Sexual Differences of the Pelvis in the Fœtus at Birth; (3) the Lobulated Condition of the Kidney at Birth; (4) the Appearance of the Ovary at Birth and subsequently by desire of Professor J. THOMPSON (Oxford).

Notes of a Case of Acute Osteomyelitis of the Spine in an Infant were read by Dr. GEORGE CARPENTER. A girl, aged 1 year, was admitted into the North-Eastern Hospital for Children. She looked ill, was anæmic, and somewhat wasted. In the left loin there was a large, smooth, rounded and fluctuating swelling, dull on percussion, and very tender. The child died six days after admission. Post mortem—The left pleura contained about two pints of purulent fluid. In front and to the left of the first, second, and third lumbar vertebræ there was a quantity of pus, and the cavity communicated with the left pleura. Microscopical examination of the pus showed streptococci and diplococci. No tubercle.*

Mr. A. H. TUBBY said Dr. Carpenter had referred to the contribution to the Society's reports which he (Mr. Tubby) made last year. He regarded the present case as a very instructive and interesting one. All who heard the description would have been struck by the extreme difficulty in diagnosis, and by the reflection that that particular form of spinal osteomyelitis was most often diagnosed, not in the ward but in the post-mortem room. There were varying degrees of spinal osteomyelitis, but he would speak more particularly of the severe form. That might be divided, briefly, into two kinds, the neural arch form and the body form. The first was distinct from the other in one or two important particulars. It was more often accompanied by nervous symptoms, and in Dr. Carpenter's case the nerve symptoms were absent. Secondly, it was comparatively easy of diagnosis, because, the neural arches being near the surface, they gave rise to a good deal of œdema. That œdema seemed to be out of all proportion to the amount of pus present. Dr. Carpenter's case invited one or two comments and a question. What was the cause of the osteomyelitis? In almost all the recorded cases it might be referred to some preceding septic condition, associated either with the mouth or with a septic condition elsewhere. The majority of cases of which he had seen records in literature

* For full account of this case see current issue of the BRITISH JOURNAL OF CHILDREN'S DISEASES.

were associated with gangrenous or other evil forms of stomatitis, an aspect of affairs which he commended to the dentist, and he intended at some time to bring that subject before the notice of that profession. With regard to cases of osteomyelitis of the bodies of the vertebræ, the main thing which struck one in the literature was that it was commonly mistaken for an abdominal condition, and not a few abdomens had been opened in the belief that the case was one of acute intestinal trouble, with pus in the abdomen, only to find that it was due to the spine. The next point in Dr. Carpenter's case was that it followed the rule, viz. that in osteomyelitis of the bodies of the vertebræ nerve symptoms were usually absent, whereas they were usually present in the neural arch cases. He would have liked to have heard more about the nature of the diplococcus which was present, and it would have been interesting to hear of some culture experiments to elucidate the point.

Mr. CLEMENT LUCAS said he noticed that Dr. Carpenter's report mentioned that the abscess pressed on the kidney, and that led him to ask whether the author noticed at any time any change in the urine, such as the presence of blood in it. Many years ago he was asked to see a case on account of the child having blood in the urine. A swelling was found on the right side, with evidence of disease of the spine, and he forthwith opened a deep-seated abscess in the liver region. As a result, the blood which had been in the urine for some time disappeared. But three months later he had a letter from the doctor intimating that again the urine was tinged with blood, and asking what he suggested. He advised the doctor to examine the other side of the spine for an abscess. One was found; it was opened, and again the blood disappeared from the urine. The symptom was clearly due to the pressure of pus on the renal vein, causing a congested condition of the kidney.

Dr. GEORGE CARPENTER, in reply, said he was not in a position to say what was the cause of the osteomyelitis. The child's mouth was quite healthy. No catheter specimen of the urine of the baby was obtained, but, judging from the appearance of the napkin, the water was normal. One point he thought would have been very freely criticised, and that was the fact that he had allowed two pints of pus to remain in the pleura without diagnosing the condition. When the child was first examined the physical signs in the chest were very slight, but the patient was sitting up. He subsequently examined the infant under anæsthesia and lying down, and during the examination the tumour apparently disappeared. At the post mortem he was afraid that it would be found that he had ruptured the abscess into the pleural cavity. But he did not now think so. He thought when the child first came under his notice there was a free communication, and that during manipulation he had extruded pus from the abdominal cavity into the pleura. A free opening was found at the post-mortem examination, and the passage was large and rounded, and evidently of no recent date.

Notes of a Case of Congenital Heart Murmur in an Infant aged 5 months, who had been ill for a week with whooping-cough, were read by Dr. E. C. WILLIAMS (Bristol). There was a continuous murmur through the whole cardiac cycle, heard loudest over the pulmonary area, but also heard over the whole chest, back and front. The heart was not enlarged, and there was no cyanosis, and the murmur persisted after the recovery from whooping-cough. The child was examined a month before the whooping-

cough by a medical man, who then detected nothing abnormal in the cardiac sounds. Dr. Williams thought that owing to the rise of blood-pressure during the paroxysms either the foramen ovale or the ductus arteriosus was rendered patent. Parrot had noted in 62 cases under two years of age the foramen ovale was only closed completely in 4 cases, and in 187 cases between one month and three years the ductus arteriosus was partially closed in 18 cases.

Dr. ROGERS (Bristol) said Dr. Williams gave him an opportunity of seeing the case with him a few weeks ago, and he could bear out every word which that gentleman had said, although he did not see the patient when it had whooping-cough. The father of the infant, a medical man in Bristol, found the heart normal. There was a loud blowing systolic murmur audible all over the heart area. The attack of whooping-cough was moderately severe, but there could be no doubt that the heart had been strained.

Dr. EDMUND CAUTLEY doubted the absence of a murmur beforehand—a father's diagnosis was not always reliable. Next, he did not quite gather whether Dr. Williams was convinced that the murmur was entirely due to a patent foramen ovale. No doubt a cough like whooping-cough might make a partially closed foramen ovale patent and give rise to a murmur; but the description of the murmur seemed to be more like that due to a patent intra-ventricular septum. He doubted whether a patent foramen ovale would produce so loud and extensive a murmur. And if the murmur were due simply to a patent foramen ovale, produced by increased tension as the result of cough, one would expect that the murmur would gradually disappear, but there seemed to be no sign of it disappearing. He would like to know what the examination of the heart yielded in the shape of evidence of hypertrophy or dilatation on the right side. An examination by the screen might enable one to ascertain whether there was hypertrophy on the right side of the heart, and that would help the diagnosis. He inclined to the view that previous to the whooping-cough there was congenital heart disease, which had become accentuated by the cough, causing dilatation. Another possibility was that the cough was not purely whooping-cough, but was complicated by bronchitis and broncho-pneumonia, and that there was some endocarditis set up by micro-organisms—for instance, by those of broncho-pneumonia.

Mr. HOWELL EVANS said, with regard to the clinical signs evidenced by various congenital cardiac lesions, he would not dare to bring forward anything in support of his theory in the presence of so many illustrious physicians, but it had staggered him, as an anatomist, to see throughout medical literature the very frequent reference to patent foramen ovale whenever there was any difficulty with reference to a cardiac sound. The pars membranacea, a more delicate structure, and one more liable to go snap from any excessive force on the right side, especially if the individual had a very strong moderator band on that side, was a point which had been very much neglected.

Dr. G. A. SUTHERLAND asked whether Mr. Howell Evans had known a case in which the septum had "gone snap," and whether he had been able to prove it post mortem.

Mr. HOWELL EVANS, continuing, in reply to Dr. Sutherland's question, reminded the meeting that he said he hesitated to speak of clinical experience, but anatomically that was the part most likely to go, because the relative muscular development of the short ventricular portion of the heart, in comparison with the elastic distensible portion of the auricle, was small.

Dr. LEONARD GUTHRIE said he saw no difficulty in accepting the theory that it was probably patent foramen ovale, at least a valvular form of that; and he thought it possible the murmur might not have existed until, under some strain, the valve became more patent, and thus the murmur might be caused. It was extremely common to find a valvular foramen ovale when there had been no sign of heart disease before.

Dr. GEORGE CARPENTER said it was a remarkable fact that the physicians attending the meetings of the Society never agreed on the subject of the bruits that were to be heard in the hearts of patients suffering from heart disease or even in their interpretation when heard, and therefore, following precedent, he was about to express a totally dissimilar opinion to those already given. He gathered from Dr. Williams' description that the murmur was continuous, and if so, he did not see how a patent septum ventriculorum or a patent foramen ovale could produce such a murmur, and a continuous murmur in association with these conditions was outside his experience. He thought the murmur described was due to a patent ductus arteriosus, and further, he agreed with the suggestion that the gentleman who made the first examination might not have detected the bruit, as it was easy to overlook such in a fretful infant.

Dr. C. W. CHAPMAN asked whether Dr. Williams would report further if anything happened to the child.

Dr. WILLIAMS, in reply, said he did not see the child before it had whooping-cough, and he was asked to see it because of the murmur, which had alarmed the father very much. If the murmur had been present before, even if it had been only one fourth as loud as at present, he must have been deaf not to have heard it. It could be heard all over the chest. The child did have some broncho-pneumonia, but although he repeatedly examined the heart he could find no increase in the area of dulness.

Notes of a Case of Acute Atrophy of the Liver in a Boy aged 4 years, admitted into the Bristol Children's Hospital, were read by Dr. BERTRAM ROGERS (Bristol). The child's only previous illness was measles. When first seen he was distinctly yellow and was very sick, and complained of abdominal pain. He became delirious, and in lucid intervals complained of headache; the jaundice was now well marked. He died two days after admission. Post mortem the liver was about the usual size, and there was no obstruction to the flow of bile.

Dr. GEORGE CARPENTER said that in the discussion on "Sudden and Unexpected Death in Children" the previous year he had published under the heading of "Undetermined Causes" a case somewhat similar to that narrated by Dr. Rogers in a girl aged 23 months which he thought was toxæmic. The child, who had been slightly jaundiced for fourteen days, out of sorts, feverish, and constipated, was found to be of a bright yellow colour. Her liver was large and reached nearly to the umbilicus. She then vomited bloody fluid several times, became convulsed, the pulse was imperceptible, and she died the following day with a temperature of 101·8° F. Post mortem the heart was fatty; the liver was large, coloured partly yellow and partly purple, and microscopically was extremely fatty. The hepatic ducts were pervious and empty. The pancreas was normal. The convoluted tubules of the kidneys were filled with oil. The urine was not albuminous, but deposited rounded granules staining a bright yellow, and leucin and tyrosin were not present. Peyer's patches were much altered, swollen, and of a dark purple colour, those high up on the bowel being precisely in the

same condition as those near the lower end of the ileum. The large intestine was normal.*

Dr. LEONARD GUTHRIE said that what struck him was the resemblance between the present case and those which had been noted as occurring after chloroform poisoning, and, to a less extent, after ether poisoning. He asked whether any smell of acetone was noticed in the breath. Also, was the liver prepared in alcohol?—because alcohol would wash out the fat. He did not think more could be said about it than that it was probably a case of acute atrophy, of very unusual occurrence. He believed Dr. Porter Parkinson recorded a somewhat similar case before the Society a short time ago. It was probably due to some toxic infection, the nature of which was not yet understood.

Mr. GEORGE PERNET asked whether there was any evidence of syphilis in Dr. Rogers' case, either congenital or acquired.

Dr. ROGERS, in reply, said there was no odour of acetone in the breath, and the specimen was not prepared in alcohol, but in formalin. There was no evidence of syphilis—the child did not appear at all like a subject of syphilis. As far as he knew, the mother had had no miscarriages.

Notes of a Case of Intussusception in an Infant aged 9 months, successfully operated upon by Mr. Whitelocke, at the Radcliffe Infirmary, were read by Mr. H. P. CROLY (introduced) (Charlbury). The operation took place eight hours after the first symptom, and was of the ileo-cæcal variety.

Dr. WHITELOCKE (Oxford) thanked Mr. Croly for showing the case, but since it left the hospital he had not had an opportunity of seeing it. He attributed the success of the operation in a child so young to the fact that it was seen and diagnosed at once by Mr. Croly, who had to send it in by train twelve miles. Eight hours after arrival the child was operated on. On examining the infant it was almost impossible to feel the lump, and not until the child was under an anæsthetic could it be properly felt. The operation presented very little difficulty. There was already some free fluid in the abdomen. The invagination was removed by squeezing from below. Even after so short a period the appendix, which had become more or less bulbous, was congested, and as it was invaginated and drawn upon, the mesentery in shortening actually produced a hook, so that the tip of the appendix prevented the intussusception from being more extensive. As the case came under observation so early that was replaced very readily, and the operation was quickly performed. He did not remove the appendix, as he wished to shorten the operative procedure as much as possible.

A Paper on Some Observations on Enlarged Veins in Children was read by Dr. A. G. GIBSON (introduced). He remarked that a large proportion of children brought up to the out-patient department of any hospital suffer from loss of appetite, wasting, and general debility. Physical signs are, as a rule, few. In many of them, however, veins in various situations are more easily seen than in normal children. The commonest situation is on the front of the chest, but they are found frequently on the back between the shoulder blades, under the chin, and on the temples. The veins are exceedingly small and are flush with the surface of the skin. These venous ramifications are not seen in all thin children, as, for instance, in the wasting that results from a cerebral tumour; hence it is probable that these veins

* 'Reports of the Society for the Study of Disease in Children,' vol. v, pp. 133, 134.

are dilated. That in some there is venous obstruction is shown by the presence of dilated external jugular veins on one or both sides, even in the upright position. On deep inspiration they do not collapse as do jugular veins in other subjects, *e. g.* a patient breathing deeply under an anæsthetic. Accurate records have been kept of fourteen such cases, showing as the cardinal sign dilated jugulars on one or both sides, which do not collapse on inspiration. Of these, seven were male and seven female; the age varied from four to ten years; a history of tuberculosis in the family was obtained in eight cases; the symptoms were either lassitude or wasting, or referred to the digestive or respiratory systems, such as frequent attacks of vomiting and diarrhœa and attacks of bronchitis or some form of chest trouble. The left jugular vein was enlarged in fourteen, the right in twelve; veins on the chest were visible in thirteen cases, on the back in two, under the chin in two, on the temples in seven. Downy hair on the back was found in six cases, the retraction murmur of Eustace Smith in ten. Small glands in the neck or elsewhere were present in nine cases. Tuberculous peritonitis was present in two cases, while in a third the signs suggested a similar condition. Only in one case had it been possible to observe the anatomical condition under which the dilatation of the veins was produced. This was in a case of tuberculous peritonitis in which a dilated left jugular vein had been noticed for some time previous to death. A dissection of the anterior mediastinum showed a ring of small fleshy glands surrounding the left innominate vein. Sections made from one of the glands revealed a few giant-cell systems and tubercle bacilli. The posterior mediastinum in this case displayed several hard caseating glands, with large numbers of tubercle bacilli. The cases correspond in character to those described by Eustace Smith as being due to tuberculosis of the mediastinal lymph-glands; and without implying that dilated jugular veins which do not collapse on inspiration are pathognomonic of such condition, it is suggested that in the presence of a tuberculous history, symptoms of debility, small glands in the neck, veins on the chest, back, neck, or temples, a retraction murmur, and in the absence of signs pointing to syphilis, lymphadenoma, or lymphsarcoma, the signs may be of value in the diagnosis of early tuberculosis.

Mr. CLEMENT LUCAS said that as a result of observations one might regard enlarged veins in the neck as generally indicative of tubercular glands; that seemed to be the result of Dr. Gibson's researches. But there were other local conditions which he (Mr. Lucas) had seen cause enlarged veins in the neck, one of which was a supernumerary rib.

Dr. G. A. SUTHERLAND said Dr. Gibson had been working at the subject, and was able to give direct evidence of a condition of affairs which most had assumed to be present but had not had an opportunity of proving. Dr. Gibson had directed his attention specially to the anterior part of the neck, and he would like to know whether he had made any observations on the posterior part of the neck. That was a region which he (Dr. Sutherland) had been watching for some time with interest, because one frequently found opposite the second cervical spine a considerable dilatation, not so much of the veins as of the venules there. The question which had been in his mind was whether that lesion was due to the presence of glands in the neighbourhood. It was often present in connection with adenoid trouble. Apart from that explanation, which he had not been able to work out thoroughly, he did not know of any reason why that special spot at the back of the neck should be the site of a very marked dilatation of veins or venules.

Dr. EDMUND CAUTLEY called the attention of the meeting to the fact that some years ago a French observer had noted a condition in which the veins of the scalp were very prominent in young children; and it seemed very probable from the present observations that the condition of venous dystrophy was due to a very similar cause, although the French observer had ascribed it to congenital syphilis. Dr. Alexander Morison had shown a similar case at the Harveian Society some time ago, and in that there was no evidence of congenital syphilis. One might conclude from the paper that there was no doubt that enlarged glands would cause dilatation of veins, but, unfortunately, one could not conclude, in the absence of dilatation, that there were no enlarged glands.

Dr. GIBSON, in reply, said he did not wish to imply that dilated jugulars necessarily meant enlarged glands in the chest; only that in those cases of which he had notes, and had an opportunity of examining, he thought, from the history and other signs, that the cause was the slight enlargement of tuberculous glands. He had not seen a case in which a supernumerary rib had caused dilatation of veins, but that was one of many causes which might produce it. With regard to the posterior part of the neck, he thought the venules which he had observed on the back and on the neck were exactly the same as described. It was not a dilatation of large veins but a dilatation or greater prominence of the venules. But he had not directed his attention to that part until he had observed several cases, so his notes were somewhat incomplete. In his later cases there were many having dilated venules on the back at the same time as the dilated jugulars, which did not collapse on inspiration.

Editorial.

THE SECOND INTERNATIONAL CONGRESS OF GOUTTES DE LAIT.

THE second International Congress of Gouttes de Lait takes place at Brussels from September the 12th to the 16th inclusive.

The Congress will be divided into two sections, the one dealing with social and philanthropic questions, the other with the scientific problem of infantile hygiene. The first section will discuss the means of protecting infant life, and will enquire if the Gouttes de Lait constitute a satisfactory armament in the struggle against tuberculosis, and if they can be looked upon as a necessary stepping-stone to the solution of the problem of the prophylaxis of tuberculosis. Next will be reviewed the laws in operation in different countries for the control of the production and the sale

of milk. These accounts will demonstrate the measures taken and the special rules in operation in various towns in regard to the milk supply for nurslings.

The Congress also will review the acts and institutions set up in the different countries to control infantile mortality, and will ask for information regarding accurate statistics of this mortality during the first year of life.

The second section will seek information on the allowance of nourishment for sucklings fed by the breast or artificially. It will undertake a study of the digestion of the nursling, the intestinal glands, and bacteriology and fæces, etc., from the point of view of questions which bear on this subject. The question of the different milks for the artificial rearing of nurslings and the indications for their employment will receive attention, as also different practical and rapid clinical methods for the analysis of milk. Information will also be sought on official instructions, and particularly on the methods adopted to popularise infantile hygiene in the different countries.

The Committee of Organisation of the Brussels Congress is of opinion that an extension of the Gouttes de Lait is necessary. But the subject not having been discussed since the first Congress of the Gouttes de Lait in 1905, they propose on this occasion to put the question clearly so as to solve the problem at the approaching Congress.

The subjects for discussion at Brussels are of great interest and of vast importance to nurslings.

That breast-feeding is the most important method of infant feeding there can be no question, and it is hoped that valuable suggestions will also be forthcoming as to the best means not only to popularise maternal nursing, but also to obtain more exact knowledge on the behaviour of the human mammary gland and the best means to insure a plentiful and continuous milk supply. Where insufficiency of food is responsible for a deficient milk supply nourishment should be given to the mother to enable her to maintain and continue the function, and it is hoped that a workable plan will be devised to meet the difficulties of such cases.

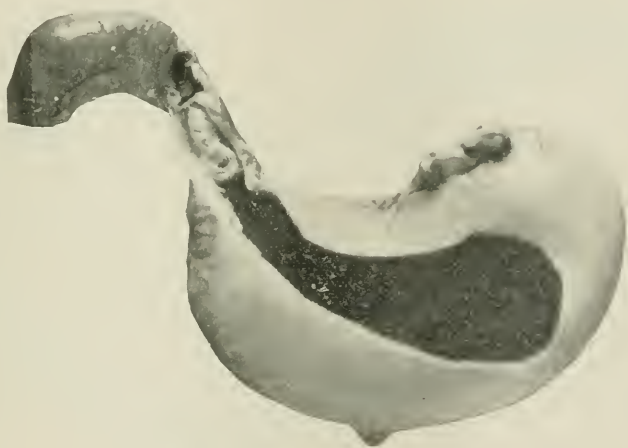
Abstracts from Current Literature.

Surgery.

Pyloric spasm and hypertrophic stenosis (an abstract of recent cases reported, with criticisms).—Very considerable additions have been made to the literature of the above affections and to the number of reported cases during the past year and a half. For critical purposes the cases may be divided into three groups, which must be considered separately.

(1) *Fatal cases not submitted to operation.*—**Sarvonat** and **Audry** ('Lyon Médical,' 1905) report the first case in France, verified by post-mortem examination. The child, a boy, began vomiting at three days of age, from

FIG. 1.



half an hour to an hour after taking the breast. The stools were small and brown. Peristalsis was noted at two weeks of age. No tumour was felt. Death took place from wasting and asthenia at the age of five weeks. **Wachenheim** ('Amer. Journ. Med. Sci.,' 1905, vol. cxxix, p. 636) reports a similar case in a boy, who died at the age of seven weeks from rather sudden collapse. Although breast-fed, vomiting began in the third week. The child was under treatment by lavage for two weeks. No tumour or peristalsis was noted. The writer gives a good bibliography. Lavage does not appear to have been of any value.

(2) *Cases submitted to operation.*—Of these a considerable number have been reported with an enormously high mortality:

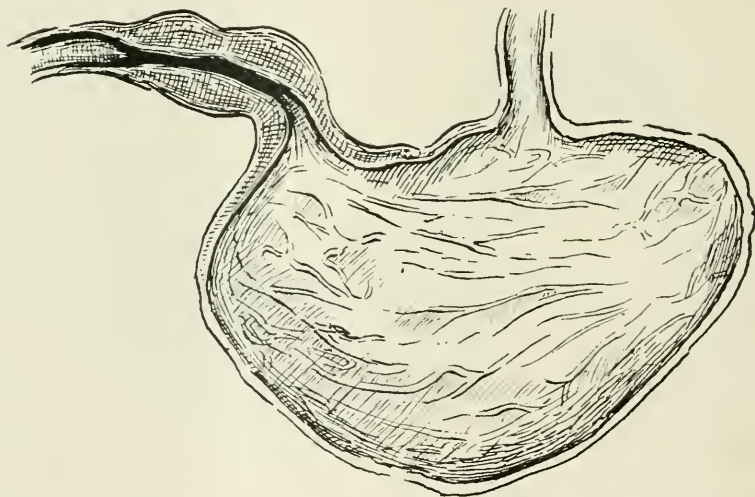
(i) *Loreta's operation.*—Male, aged 4 weeks, with symptoms since fourteenth day of life. Pylorus felt at three weeks. The pylorus was dilated by Stabb sufficiently to admit the little finger, yet the child died fifteen days later from starvation. **George Carpenter** (BRITISH JOURNAL OF CHILDREN'S DISEASES, 1905, p. 512, and 'Reports of the Society for the Study of Disease in Children,' 1906) (Fig. 1). The result in this instance is a very strong

contra-indication to treatment by stretching the pylorus. It shows that contraction recurs with great rapidity. Possibly, if sufficient force is used to rupture the muscle-fibres, contraction will not recur so readily, but the dangers of such forcible proceedings are obvious, and unfortunate results have been seen in cases thus treated.

(ii) *Gastro-enterostomies*, generally posterior, have been done in the following six cases with only one recovery.

(a) *Recovery*.—Posterior gastro-enterostomy was done by **Munro** (reported by Rotch and Ladd, 'Arch. of Pediat.', 1905, p. 725) on a child of three weeks, with symptoms dating from birth. No tumour was felt before operation, yet the pylorus was found to be about three quarters of an inch long and the stomach capacity was about 4 oz. The child was well twelve months later. This is the earliest age recorded at which this operation has been performed. The size of the pylorus and the great dilata-

FIG. 2.



tion of the stomach at so young an age are in favour of the congenital theory of causation.

(b) *Death shortly after operation*.—Anterior gastro-enterostomy took place in the case recorded by **George Carpenter** and **Mummery** (BRITISH JOURNAL OF CHILDREN'S DISEASES, 1905, p. 512). The girl, aged 5 weeks, had symptoms almost from birth and a palpable pylorus (Fig. 2). **Murphy** (reported by Morse, 'Arch. of Pediat.', 1905, p. 731) performed the posterior operation on a child, aged 6 weeks. The symptoms had existed for four weeks. Vomiting was marked, and the stools were like meconium. Operation was delayed by the parents. The pylorus was characteristic. Death took place ten hours after, and was due to debility.

(c) *Death some days after operation*.—In a case operated on by **Bottomley** (reported by Morse, *loc. cit.*) death took place ten days after the operation, which was delayed until the child was eight weeks old and very weak. **Barling** lost a case from hæmorrhage ('Brit. Med. Journ.', 1905, vol. ii, p. 1523). The child was weaned at three weeks because persistent vomiting

had set in. Peristalsis and a tumour were noted before the posterior operation was done, at the age of six weeks. The operation took forty minutes. On the second day bleeding took place into the dressings from the skin-incision, to the extent of four or five ounces, and the child died on the fifth day. The lungs showed broncho-pneumonia and collapse. Probably the bleeding was the main cause of death. In **Stone's** case (reported by Rotch and Ladd, *loc. cit.*, p. 728) the age and sex are not stated. Vomiting, constipation, and emaciation were marked, and the child was very weak. The stomach and pylorus were typical. The anterior operation was performed, but death took place five days later. Localised peritonitis was found at the autopsy; a slight fibrino-purulent exudate about the seat of operation and along the edge of the liver. No leakage.

C. S. Scudder and W. C. Quimby ('Amer. Journ. Med. Assoc.' May 20 and 27, 1905) review the literature and publish an analysis of 115 recorded cases. Of these, up to January, 1905, fifty-nine had been submitted to operation. I do not quote the results, for mortality statistics are of little value in this condition. The prognosis of operation depends on the general condition of the child previous to operation rather than on the special kind of operation performed. These writers do not refer to any cases under their own care, but I am informed that Scudder operated last summer on two children at the ages of fourteen and twenty-six days, with recovery. Posterior gastro-enterostomy was done. It will be of considerable interest if Scudder publishes these cases, with a careful note on the size of the pylorus and the degree of constriction which necessitated an operation at such an early age as fourteen days.

(iii) *Pyloroplasty* has proved equally fatal. Of five recorded cases, all died. **Cautley** showed three specimens from cases operated on by Dent (*BRITISH JOURNAL OF CHILDREN'S DISEASES*, 1905, p. 512 and 'Reports of the Society for the Study of Disease in Children,' 1906). All the children were males. The first weighed $5\frac{1}{2}$ lb. at the age of twenty-eight days. Pyloroplasty was done next day. The usual condition was found and the child recovered. Unfortunately, he developed two attacks of ileo-colitis, from the second of which he died in the eighth week after operation. This might be claimed as a cure of the pyloric affection, for food passed readily through during life and the lumen was found amply patent after death. The second child was operated on when weighing 6 lb. 3 oz. and fifty-three days old. Symptoms had been in existence since the first week of life. The child took the anæsthetic well and subsequently appeared to be progressing very favourably. Death took place suddenly from syncope on the fourth day, and at the post mortem a little localised peritonitis was found similar in character and distribution to that in Stone's case. The third child was operated on when sixty-one days old and weighing under 8 lb. Although a large child, he was very weak and wasted. He took the anæsthetic badly, never properly came round, and died four hours later from cardiac failure. **George Carpenter** ('Reports of the Society for the Study of Disease in Children,' vol. v, 1905, p. 242) reported a fatal result after pyloroplasty in a female infant who weighed only $5\frac{1}{4}$ lb., although three months old. The pylorus was very hard, and the operation performed by Mummery (Figs. 3 and 4) took twenty-five minutes. The child was much too weak to stand such an operation and died the next morning. **R. Morison** ('Lancet,' 1904, vol. ii, p. 1782) operated on a male infant, seven weeks old, with symptoms more or less since birth, but worse for two weeks. Emaciation was great. Peristalsis was seen but no tumour felt. Death took place thirty hours after operation. Mouth-feeding was

begun immediately and vomiting recurred about every half-hour. It is doubtful whether it is advisable to give food so soon. Probably it is best to rely on plain hot water.

The most obvious criticism on all these cases is that the majority of them were too weak, too much emaciated, to stand the operation. They died from the shock, from surgical accidents, such as local peritonitis and hæmorrhage,

FIG. 3.



or the marasmus, from which they were unable to recover. Apparently, too, they were all hospital patients, and it is only too well realised that patients of the hospital class are rarely brought sufficiently early, or, from the pressure of work in a crowded out-patient department, are not diagnosed early enough to enable the surgeon to get successful results. It is extremely unlikely that a marasmic infant, under 6 lb. at six weeks or more of

FIG. 4.



age, will recover under any mode of treatment whatever. On the other hand, the results obtained in private practice are quite good, provided that the disease is seen and recognised before marasmus has set in. Diagnosis and early operative measures are essential.

It is often urged that cases can be cured without operation, that the symptoms are merely the result of spasm, and that if the spasm is successfully treated the hypertrophy can be neglected. With reference to this

point I can only say that up to the present I have never yet diagnosed a case as one of congenital hypertrophic stenosis of the pylorus and found it get well without the aid of the surgeon. I have now seen fifteen cases, and out of the last ten two have not been submitted to operation. Both these died. One is fully recorded in the 'Reports of the Society for the Study of Disease in Children,' 1904, p. 39. The other has not yet been reported. She was one of twins and died at the age of ten weeks, weighing less than $3\frac{1}{2}$ lb. Vomiting had begun in the fourth week. Constipation was present from birth. While under observation lack of appetite was the chief symptom, and vomiting rarely occurred. Moderate peristalsis was seen. Operation was out of the question in such a wasted infant. The temperature was persistently below 95° F. The pylorus was quite typical and the stomach as large as that of a child five months old and weighing 10 to 11 lb. The lumen was pervious.

Cases have, however, been reported in which a diagnosis of this affection has been made and yet recovery has taken place. It is probable that some of these are mild degrees of hypertrophy and stenosis and that others are simple cases of pyloric spasm. The existence of the latter condition cannot be doubted, for fatal cases of vomiting, with all the symptoms of pyloric obstruction, have been reported and yet the pylorus has been found apparently normal at the autopsy. These cases require careful diagnosis or they may be submitted to an unnecessary operation.

Blaxland ('Lancet,' 1905, vol. ii, p. 826) reports recovery without operation. The boy weighed 10 lb. at birth, and 8 lb. when admitted at four months of age to the Hospital for Sick Children, Great Ormond Street, W., under Dr. A. Garrod. Vomiting dated from birth. Wasting and constipation were present. Peristalsis, a tumour, and a dilated stomach were noted. The child was bottle-fed. On daily lavage and a diet of humanised milk, 3 oz. every two hours, the child rapidly recovered and gained $4\frac{1}{2}$ lb. in four months. It is worthy of note that this child was much older than usual for these cases, and that though a tumour was palpable, implying considerable hypertrophy, the child was not greatly wasted and could take a very considerable amount of food. It is impossible to exclude a diagnosis of spasm due to bad feeding, for there is no certainty that the tumour felt was the pylorus.

Neild ('Lancet,' 1905, vol. ii, p. 1543) claims that he cured two patients by opium. One of these, aged 5 weeks, began vomiting a few days after birth. Slow peristalsis was visible and the pylorus was felt, apparently tender. A week later the child was no better. Then opium, in doses of one eightieth of a minim, was given before each breast-feed, and the child steadily improved. The other child was eight weeks old, bottle-fed, and suffered from vomiting and constipation since one week of age, and was much emaciated. Peristalsis and a tumour were noted. It recovered on similar doses of opium. It is almost incredible that such excellent results could be obtained by such minute doses of opium, if the pylorus was sufficiently hypertrophied to be palpable. Probably these cases belong to the group of pyloric spasms the result of bad feeding.

J. Crozer Griffith ('Arch. of Pediat.,' 1905, p. 721) reports a case which appears to have been a genuine one. The boy weighed 10 lb. at birth, and began vomiting on the sixteenth day. On the twenty-first day he was drowsy, vomited frequently, exhibited marked peristalsis, and passed viscid brownish or greenish stools of mucus and bile. For the next ten days no faecal matter appeared in the stools, but after that it slowly returned. At

seven weeks the vomiting ceased entirely. The treatment consisted of lavage, and a diet of whey and albumin-water. An unusual feature of this case was the marked drowsiness. It suggests the possibility of another diagnosis, viz. spasm secondary to food-irritation. Peristalsis and dilatation of the stomach, but no tumour, were noted.

Messrs. Harper ('Lancet,' 1905, vol. ii, p. 503) report an even more typical case which recovered after a long and dangerous illness. The boy was bottle-fed. Vomiting and constipation began in the fourth week. At six weeks he was much emaciated, with dilated stomach and peristalsis. For three days he had frequent fits. At nine weeks he weighed only $5\frac{1}{2}$ lb. A tumour was felt. Only hot water and saline rectal injections were given for two days, and after that he slowly improved. At one year of age he weighed over 26 lb. Diluted peptonised milk, in small frequent doses, proved the best diet. Assuming that the diagnosis was correct, a study of Messrs. Harpers' careful account suggests that the child ran a greater risk of dying than if he had been operated on.

Schmidt ('Münch. Med. Wochens.,' 1905, Bd. 7) distinguishes between true hypertrophy and spasm. For the former he regards operation as almost imperative. He recommends pyloroplasty in early cases, but thinks gastro-enterostomy more suitable for cases in which secondary dilatation is present.

Still ('Lancet,' 1905, vol. i, p. 632) claims to have seen twenty cases, and states that in his opinion many such cases recover completely if recognised sufficiently early and subjected to suitable treatment. Eight were operated on by Burghard and one by Stiles. Loreta's operation being done in each case, and of these seven recovered. One of the seven died some months later from broncho-pneumonia. Of the remaining eleven no details are given as to the number of fatal and non-fatal cases or of the post-mortem appearances in fatal cases. The writer is strongly in favour of lavage as the best mode of treatment, but holds that in some cases operation is the only means of saving life.

A full and valuable monograph by **Ibrahim** of Heidelberg ('Die Pyloro-stenose,' Berlin, 1905), with good bibliography, refers to seven cases. Of these, two died after posterior gastro-enterostomy on the same day; three recovered under careful diet and lavage, but of these one died at eleven months from broncho-pneumonia.

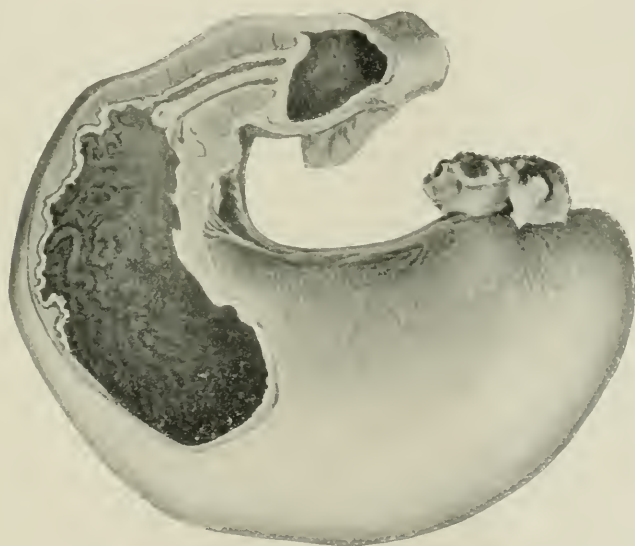
Another admirable monograph is that by **Sarvonat**, 'Le Rétrécissement congénital hypertrophique du Pylore chez le nouveau-né' (Maloine), 1905. It is well printed and very clearly written. He refers to the case published by himself and Andry and to two unpublished ones. Of these, one was under Weill and Nové-Josserand. Gastro-enterostomy was done at the age of seven weeks, and the child recovered. It was quite well and of normal weight eight months later. The other child came under the care of Porot at the age of two months for vomiting, which had begun on the third day of life. Death resulted at four months of age, no operation being done, and the pylorus was found much hypertrophied, though the stomach was not at all dilated.

This summary of the writings and observations of the past year indicates that the disease is much more common than generally supposed; that operative treatment in wasted infants is not often successful; that cases with apparently all the symptoms of the affection do get well without operation; that great care is essential in diagnosis before accepting a diagnosis of pyloric hypertrophy necessitating operation from pyloric spasm.

which is curable by simpler measures. Attention should be directed in the future to the cases in which the disease is diagnosed, on account of the symptoms and the presence of peristalsis and a tumour, and careful post-mortem examinations should be recorded in such of those which end fatally.

Several more cases have been reported during the present year. **George Carpenter** ('Med. Press and Circular,' July 4, 1906) published fuller details of two of the cases above referred to, and a further case of a female infant, aged five weeks, who died a few hours after posterior gastro-jejunostomy (Fig. 5). She had been "sick after each feed" since two days after birth, and the bowels were confined or she passed stools like green water. Her weight at four weeks of age was $5\frac{3}{4}$ lb. Peristalsis and a palpable pylorus were noted. Lavage, opium, and careful diet were tried for about a week without effect. The pylorus was three quarters of an inch long and the stomach was not dilated. The author in view of his experience suggests

FIG. 5.



that failing relief by a well-adjusted dietary free from coagulum it would be better to perform a preliminary jejunostomy which could be done very quickly, to feed the child by the artificial opening until such time as it is better prepared to resist the shock, and then proceed to the major operation.

Rogers ('Arch. of Pediat.,' 1906, p. 387) reports a case in which a posterior gastro-enterostomy was done at the age of nine weeks. The previous history was typical, but the pylorus was not felt. For some days after operation progress was good, but unfortunately, on the seventh day the gut prolapsed through the wound. It was replaced and the wound again sewn up, but death occurred from adhesive peritonitis on the fifteenth day.

Rogers and Howland ('Arch. of Pediat.,' 1906, p. 190) record a successful case, the third only reported in America. The boy weighed 9 lb. 7 oz. at birth, and was breast-fed. He vomited slightly since birth, and at three weeks to a greater extent. At five weeks there was mucus in the vomit.

He was hungry and constipated. At ten weeks he weighed only 7 lb. 14 oz. Vomiting was projectile, and hydrochloric acid was found in the vomit. Peristalsis and dilatation were noted, but no tumour was felt. Food given nine hours previously could be recovered from the stomach. Posterior gastro-enterostomy was done at the age of three months, the child's weight being 7 lb. 4 oz. The pylorus was typical. Faecal matter was found in the stools two days later. He gained 2 lb. in six weeks, and at nine months of age weighed 15 lb. 10 oz.

Fischer and Sturmdorff ('Arch. of Pediat.,' 1906, p. 341) reported a case in which death ensued in convulsions thirty hours after anterior gastro-enterostomy. The clinical features and the post-mortem appearances were typical. Mucus and lactic acid but no hydrochloric acid or bile were found in the vomit. Lavage showed that the stomach would hold 14 oz. The boy, aged 10 weeks, weighed 7 lb. 8 oz. and was extremely emaciated. These writers give an extensive bibliography, but their references require verification.

J. W. Rob ('Lancet,' 1906, vol. i, p. 1751) reports a case of cure without operation, treated by diet, lavage and opium. Patient, a boy, wasted down to 5 lb. 7 oz. in weight at the age of seven weeks. The child was breast-fed for three weeks and then given milk and barley-water. He did not improve and became very constipated. He first vomited on the twenty-sixth day; after that the vomiting became more marked and the child became very feeble and wasted. Peristalsis was noted at the age of one month. A tumour was felt in the sixth week. The vomiting ceased at the age of nine weeks and after that the child slowly improved. Assuming that this was a genuine case, and not one of pyloric spasm, it is probable the child ran a greater risk of death than if an early operation had been done.

An acute case came under my care this year. The vomiting was very severe, with hæmatemesis and melæna. Pyloroplasty was done by Mr. C. T. Dent on the forty-fifth day of life, the day after the child was first seen, and the child was well enough to leave the nursing home in less than a fortnight. She had lost 17 oz. in the two days preceding operation and 14 oz. in the previous week.

EDMUND CAUTLEY.

Fragilitas ossium, sel osteopsathyrosis ('Arch. of Pediat.,' 1906, p. 446).—**C. Martin** records a case in a boy aged 15 years. The family history was negative. Since the age of two years the boy had sustained twenty-four fractures from very slight injuries. Up to this time development had proceeded normally. The fractures were almost painless and caused very little inconvenience at first. The last two or three had been more painful. Liability to fracture was diminishing. All had united normally, except the last one, in the olecranon. This showed, on examination by the X ray seven months after its occurrence, only fibrous union. The blood and urine were normal.

EDMUND CAUTLEY.

Medicine.

Fat digestion ('Arch. of Pediat.,' 1906, vol. XXIII, p. 414).—**J. P. Sedgwick** reports the results of the study of fat-splitting in the infant's stomach. The experiments were carried out by testing the action of gastric juice on yolk of egg, and are fully described. The conclusions drawn were: (1) There is a fat-splitting ferment present in the infant's stomach. (2) The ferment could be demonstrated very early in life—in the first hours in the rabbit and at least in the second week in the infant. (3) In

the infant's stomach itself the milk-fat is partially split—in these experiments from 2.9 per cent. to 10.6 per cent. (4) After the first half-hour the fat-splitting increases slowly but steadily. (5) The acids produced are mostly higher members of the fatty acid series, and are derived, in the greater part, from the fat.

EDMUND CAUTLEY.

Imbecility and epilepsy consecutive to a hydatid cyst of the dura mater with ossified walls (*Arch. de Neurol.*, February, 1906, vol. xxi, p. 89).—Aubry and Lucien give an elaborate description of a remarkable case presenting the features indicated in the title. The patient was well till the age of seven, when, after repeated convulsions, a left hemiplegia appeared, together with arrest of intellectual development. After this date she suffered from inveterate epilepsy. The authors describe her at the age of thirty-six. At this time she was an imbecile, could just make herself understood, but knew no letters of the alphabet. Her speech was hesitating and scanning. She suffered a great deal from headache, especially after her attacks. Her face was masculine and had a well-developed beard and moustache. Her right eye was prominent and its dilated pupil did not react to light: the left eye deviated outwards; both eyes showed marked nystagmus. The left hemiplegia was complete. She had several hundred fits a year, but these became less frequent as time went by. She died of broncho-pneumonia at the age of thirty-eight. At the autopsy was found a large cyst of the dura mater compressing the right hemisphere. The cyst was situated above the cerebrum and was very extensive; it was of hydatid origin and its walls were quite calcified. There was a corresponding atrophy of the left cerebellum. Endocranial hydatid cysts are not very rare; Sato collected 128 cases two years ago. Their course is usually rapid. There is no case on record similar to the present one, showing a duration of thirty years and a symptomatology of imbecility and hemiplegia.

ERNEST JONES.

Case of pseudo-renal dropsy (*Lancet*, June 23, 1906).—West reports the case of a male infant, aged 20 months, who was admitted into hospital with considerable anasarca. When the urine was examined no trace of albumin was found. The œdema was considerable and involved the whole body. The abdomen was distended, but tympanitic and free from fluid. The liver was enlarged and reached one inch below the ribs in the right nipple line. The spleen could not be felt. All the other organs seemed healthy. The child was very pale and feeble. He had had a severe attack of measles a month previously, followed by frequent and severe diarrhœa. Ten days before admission the swelling of the face and body developed and rapidly reached a considerable degree. The child presented no other symptoms, had no diarrhœa after admission, took his milk well, and rapidly improved. The only means adopted were diuretics and baths. In a week the œdema had completely disappeared from the legs and body and in a few days more from the face. It is interesting to note that it vanished from the face last. The blood showed a small leucocytosis, due to a slight increase of lymphocytes, but there was no great diminution in the number of the red cells. The œdema here was not of the type met with as the result of cachexia. It is directly comparable with that found in acute nephritis. The clinical history and course of the case proved it to be non-renal in origin. The œdema was here the result of a severe attack of measles in a previously healthy child, and was due to the malnutrition produced by severe diarrhœa. Very little has been written on the subject, although West claims to have seen several instances similar to that described. JAMES BURNET (Edinburgh).

A case of infantile spasmodic hemiplegia (*'La Clin. Infant.,'* May, 1906, p. 257).—Houzel reports the case of a girl, aged 12 years, whose family history was unimportant, except that an elder brother died at the age of thirty-nine years, after nine months' illness, with irregularity of gait, contractions of the arms, and embarrassment of speech, and in whom mercurial treatment was unsuccessful, and also that a female cousin of her father, aged 27 years, had the same congenital symptoms as the patient. Delivery was difficult and had been effected by forceps, the marks of which were still to be found on the scalp. At the age of nine months there appeared on the right side of the head, equi-distant from the parietal eminence and the lateral angle of the large fontanelle, a swelling the size of a pheasant's egg, red and spotted with brownish marks, rising 3 cm. above the level of the skull. It underwent slow absorption and disappeared without leaving any trace about the age of two years, at which time the parents first perceived that the child was abnormal. When three years old she could walk alone, but with the feet in a position of equino-varus, especially the right, and there was progressive weakness of the arms. When she came under observation she had contraction of the upper and lower limbs on both sides of the lower half of the face, involving also the tongue, palate, and larynx. She was small—only 1 m. 23 in height, while her sister (one year younger) measured 1 m. 45. She passed most of her life in an arm-chair with the trunk bent forward. In the erect posture the upper part of the body leaned against the person who held her, while the legs slipped forward. She took short steps, the toe touching the ground as if the foot was raised with an effort. The feet, when placed together, formed an angle of 45°, open in front, in a position of equino-varus. If unsupported she fell. When recumbent the hip- and knee-joints were flexed, the foot extended and rotated inward. All the muscles of the thigh and leg are contracted, more markedly in the posterior masses of the thigh, the adductors and flexors of the thigh, and in the posterior and anterior internal masses of the leg. The resistance offered by the contraction to any movement given ceases at once if the child is told to make the movement herself. The contraction, so to speak, ankyloses the limb in walking, the knees rub against each other, and movements of flexion take place exclusively at the femoro-iliac joint. Most of the joints of the upper extremity are flexed. In prehension the object is seized with the four fingers—the thumb is useless; to let go the object it is slipped from the fingers—she cannot sufficiently open her hand to let it fall out. Both hands execute the movement which is carried out by one hand only, and the mouth contracts at the same time. The concavity of the spine compensates for the contraction of the thigh or the pelvis. There is no atrophy of muscles, spinal deviation, nor contracture of abdominal muscles. The anus is strongly contracted. Menstruation does not occur. Nocturnal incontinence of urine occurs three or four times a year. The upper part of the face is that of a normal child with intelligent eyes and clear vision; in the lower part, on the contrary, the mouth gives an idiotic expression. In repose it seems normal, but as soon as attention is attracted it opens in a yawning manner, exposing the teeth and gums. Blowing, whistling, and spitting are impossible. The mouth cannot retain saliva or fluid in the upright posture. Mastication is not possible, and the child is fed by pushing in pounded meat to excite deglutition reflex. The tongue can be pushed as far as the teeth only; no lateral movement; it lies on the floor of the mouth rolled upon itself. The pharynx is insensitive, but liquids do not come through the nose, nor is the voice nasal. The

larynx appears to participate in the contraction; the emission of a sound demands effort which is not always effectual. She speaks with the mouth open and can only pronounce the vowels *a* and *e* and the consonants *m*, *b*, *p* imperfectly. The intellectual faculties and sensation remain intact. Intelligence is quick and memory excellent, but attention is difficult to maintain. She is seized with vertigo if not supported. Reflexes are difficult to obtain on account of the contractions, rather diminished in the knees, and impossible elsewhere. Toe reflex is normal. No epileptiform attacks have been noticed. The state is one of congenital contractions of certain muscles, excited by noise and attention and not relaxed by sleep. Two interesting facts are—first, the cranial swelling, the compression of which on the cerebral cortex must have excited the formation of a focus of pseudo-porencephalic softening; and secondly, the hereditary predisposition. VINCENT DICKINSON.

Syphilitic ulceration of the umbilicus in infants (*La Clin. Infant.*, May, 1906, p. 281).—Hutinel calls attention to this rare but striking localisation of hereditary syphilis, often mistaken for an ordinary infection. The chief characteristics are—About the eighth to the twentieth day, soon after the fall of the cord, the umbilicus swells, forming a smooth, round projection of 2 to 4 cm. radius, of inflammatory appearance, with sometimes a slight desquamation on the summit. The centre then ulcerates and a deep crater appears in the place of the umbilical cicatrix, with punched-out edges, grey surface, very little secretion, which enlarges and forms an excavation about 1 cm. deep, which seems threatening to perforate the abdominal wall. The ulceration is indolent, extends slowly to the diameter of 1 to 1½ cm. or more. But its increase is not definite, for after twelve or fifteen days the cutaneous covering tends to close in, the swelling and redness diminish, but a fistulous ulceration remains, into which the probe passes deeply. This fistula is obstinate and resists ordinary remedies. Syphilitic umbilical ulceration is especially met with in severe cases, but has little effect on the general health, temperature and pulse remaining normal. It is curable, but if death ensues it is the result of a secondary infection. It usually makes its appearance at the same time as other syphilitic manifestations, but in some cases it is the first apparent sign of the disease and its recognition is important. There are cases of simple omphalitis whose evolution resembles more or less that of the gummatous ulcer. These simple umbilical lesions are infinitely more common than the syphilitic; they disclose themselves by redness, swelling, and a slight discharge from the umbilical cicatrix: when erysipelas does not follow, this irritation remains superficial and of little extent, but the infection of which it is the indication tends to diffuse. These lesions only resemble the gummatous ulcer at the commencement. VINCENT DICKINSON.

Pathology.

Calcification of the breast (*Johns Hopkins Hosp. Med. Soc.*, December 4, 1905; *Johns Hopkins Hosp. Bull.*, February, 1906, No. 179, p. 60).—Thayer presented the case of a coloured girl, aged 16 years, who had been suffering two months before with typhoid fever. The intestinal hæmorrhage had been treated with calcium lactate by the mouth and calcium chloride subcutaneously. She received 132 grammes of the former in eleven days. She was infused under the left breast—the breast-tissue not

being punctured—with 500 c.c. of a 1 per cent. solution of calcium chloride. On the day following her coagulation time was eleven minutes. Sixteen days after the injection a large abscess was opened in the breast, and the cavity was packed with iodoform gauze. From the pus was grown *Staphylococcus aureus* and *Bacillus typhosis*. Eleven days after the operation it was noticed that the edges of the wound showed a bony hardness for at least 4 cm. from the opening. The abscess cavity wall contained the same bony tissue wherever it could be touched. Examination of the material proved it to consist of phosphate of lime in some organic compound. There was no evidence of tuberculosis. The experiments of Kossa have shown that iodoform has a marked influence in favouring the deposition of lime-salts.

ERNEST JONES.

Purulent pericarditis simulating empyema ('*Lancet*,' May 5, 1906).—**Basil Adams** records the case of a well-developed girl, aged $4\frac{1}{2}$ years. There was a history of an illness of one month's duration, commencing with what was diagnosed as influenza. This was followed by an attack of diarrhoea and vomiting, accompanied by abdominal pain. A fortnight before admission pneumonia was thought to have set in. During the whole month the child's feet had been slightly swollen, and at one time the left knee-joint. She had not seemed feverish for the few days before admission to hospital, but her appetite had been capricious, and she had only passed a small quantity of concentrated urine. Except for slight attacks of "bronchitis," her health had previously been good, she never having had any children's ailments. The family history was excellent. Empyema was diagnosed, and by aspiration twenty-eight ounces of pus were withdrawn. The condition then became worse. It was decided to have a portion of the eighth rib resected on the left side in the posterior axillary line, but as soon as a small opening was made in the pleura the child collapsed and died. No pus came from the pleural cavity, but a few drachms of turbid fluid and air escaped. At the post mortem the pericardium was found to contain fifteen ounces of pus. The pericardial cavity was found to extend as high as the left clavicle, to the ribs in the left axilla, and also three inches to the right of the middle line of the sternum. The wall of the pericardium was about one sixth of an inch in thickness. The left lung was completely collapsed; near its base could be seen punctures where the aspirating needle had entered and left it. Cultures of the pus removed by aspiration, and that found in the pericardium post mortem, showed the *Staphylococcus pyogenes albus* to be present.

JAMES BURNET (Edinburgh).

Ophthalmia neonatorum (S.W. London Medical Society: '*Med. Magazine*,' June, 1906).—**W. I. Hancock** read a capital paper, in which he remarks that there is an erroneous tendency to attribute all cases in the new-born to the gonococcus. At least one third are due to other organisms, such as the pneumococcus, Koch-Weeks bacillus, or *Bacillus coli communis*. This is not surprising when we remember that a great number of pregnant women suffer from catarrh of the vagina, with a mucous or purulent discharge. In the greater proportion of these cases we have to deal with a benign vaginal catarrh, in a smaller number with one of the more virulent types. The infant's conjunctival sac is especially prone to infection with micro-organisms, because the lachrymal glands secrete no tears, and hence the infant's eyes are deprived of a most important mechanical protection. Moreover the conjunctival epithelium is very much thinner than in the

adult. Infection usually takes place just after birth, when the secretion on the lids is allowed to get into the conjunctival sac, which, with its moist, warm pockets, forms a model incubator for their growth. When infants are born with inflamed eyelids we generally find that the membranes have been ruptured many hours or may be days before birth, and the organisms have therefore had time to set up the conjunctival inflammation. With regard to the incubation period, when the infection takes place in the usual way it is almost invariably three, and practically never more than five, days after birth, so that if the discharge makes its appearance after the latter date we may be quite sure there has been some want of cleanliness on the part of the mother or nurse. It is probably not the case that the shorter the incubation period the more virulent will be the infection.

JAMES BURNET (Edinburgh).

Therapeutics.

Experimental results of feeding by malted broth ('*Rev. Mens. des Mal. de l'Enf.*,' March, 1906, p. 112).—**E. Terrien** describes the preparation of these foods. To make a litre of broth, two thirds litre of water is added to one third litre of milk, 70 grammes cream of rice, and 50 grammes ordinary sugar. Details of forty-three cases are given. The advantage of this method of feeding is seen in the appearance of the stools and in the curve of weight; it is indicated in cases where milk is tolerated badly and a carbohydrate diet required as in dyspepsia and chronic gastro-enteritis. On the other hand, it should not be prescribed in acute febrile states, nor in acute infections with or without intestinal complications, nor in cases of gastric intolerance; when there is a tendency to vomiting, these broths exaggerate it and often provoke diarrhœa; they should not be given to infants below the age of four months.

VINCENT DICKINSON.

Œdema in the course of infantile gastro-enteritis ('*La Clin. Infant.*,' January, 1906, p. 54).—**Rocaz** states that œdema appears in infants attacked with relapsing sub-acute entero-colitis, the diarrhœa is slight, and alternates with constipation, the stools very fœtid and mucous, the abdomen often retracted and tender; the colon may be felt, contracted, hard, and sensitive; vomiting is frequent. Another variety of enteritis during which œdema may occur is characterised by sharp fever, dirty tongue, and vomiting, the stools pasty and pale, swelling of "anatomical maceration," the belly often distended. It is in this form that pulmonary and cerebral complications are noticed. On the other hand, in choleraic gastro-enteritis with abundant diarrhœa œdema is very rare; in infantile cholera in particular it is never observed. The author considers the œdema to be caused by nephritis produced by the gastro-enteritis, which may exist with or without albuminuria. All the cases, however, are not due to nephritis, but to functional insufficiency of the kidneys, often transitory, and caused by organic defect (prematurity, marasmus) or by the action of intestinal poisons on them. Oliguria is present, and the œdema only disappears when an abundant secretion takes place. This conception does not refuse to admit the part played by the retention of chlorides in the pathology of œdema but confirms it, since an inadequate kidney would cause their retention more easily. This has an important bearing upon treatment. In infantile cholera and diarrhœa, which specially call for injections of artificial serum, and

which are so rarely complicated by œdema, it is conceivable that the fixation of a certain quantity of water in the tissues by chloride of sodium is a favourable phenomenon by preventing a true dehydration of the whole organism. On the other hand, in affections of digestion where diarrhœa is slight or absent and where the urine is scanty, serum should be employed cautiously, large doses being avoided, and only repeated if the kidneys act well. When œdema is present, the use of saline solutions is contra-indicated; lactose or theobromine should be administered, the œdematous limbs wrapped in wool, and treatment directed to the digestive infection by repeated purgation. A watch should be kept upon the renal secretion for a long time after the cessation of symptoms.

VINCENT DICKINSON.

The galactogenic action of cotton-seeds (*'La Clin. Infant.'* April, 1906, p. 234).—**Barlerin** reports to the Academy de Médecine the results of his experiments in fifty-eight cases. Extract of cotton-seed was administered in fifty-eight cases, in which analysis showed improvement in the quality of the milk, chiefly in the fat and albumin, the former being increased 50 per cent. and the latter 48 per cent. It seems likely that its administration to nursing mothers may be of considerable service in increasing the amount of fat and albumin in the milk, but its effect must be watched, as an excess of these constituents would tend to excite gastric and intestinal trouble.

VINCENT DICKINSON.

The galactogenic action of anise-seed (*'La Pédiatria,'* April, 1906, p. 263).—**G. B. Burzagli** prescribed an infusion of anise 25 per cent., of which twelve spoonfuls were to be taken during the twenty-four hours and with which four or five compresses a day were applied to the breasts. Artificial lactation had been necessary, but after ten days the mothers were able to resume and continue nursing for ten to eleven months. In other cases he used a 30 per cent. infusion in doses of eighteen to twenty spoonfuls every twenty-four hours, and in one instance by this means succeeded in establishing an abundant secretion of milk after five days; the secretion had been scanty from the commencement and then totally disappeared.

VINCENT DICKINSON

Salicylate poisoning in children (*'Lancet,'* June 30, 1906).—**F. Langmead** has had the opportunity of watching several cases treated with salicylate of sodium which developed definite symptoms of poisoning. Some showed acid poisoning symptoms—that is, drowsiness deepening into coma, and if untreated this ended in death and air hunger of the Kussmaul type, increasing with the drowsiness. The child is flushed, the eyes are bright, and there is usually great thirst. Vomiting usually, but not always, precedes these symptoms. The drowsiness may replace, or be associated with, the delirium. When he saw some of the cases he was interested in the condition called "cyclical" or "recurrent" vomiting of children, in which acid poisoning also occurs, and this led the author of this paper to examine the urine of the patients for acetone. He found acetone present in large amount in all the cases in which it was looked for. He got no reaction in the urine of patients taking salicylate of sodium in whom no poisoning symptoms had developed. The sweet odour of acetone was evident in the breath of all the more severe cases. From Langmead's paper it would appear that there is a great variation in the amount required to give toxic symptoms, some children being, indeed, on quite small doses, while none had excessive doses given them. All the patients were constipated before the onset of the symptoms,

so that a greater accumulation than usual might have taken place. The indication therefore is to have the bowels kept well open while salicylates are being administered. Bicarbonate of sodium is a prophylactic and remedial measure. Very large doses, however, are required to neutralise the urine of patients taking salicylates. The presence of acetone in the urine is a danger signal in such cases, and when found the salicylate administration should be stopped at once.

JAMES BURNET (Edinburgh).

Otology.

Mastoid abscess caused by primary caries of the mastoid process (*'Lancet,' May 5, 1906*).—**Leonard P. Gamgee** says that in young children a form of mastoid abscess often occurs with pre-existence of any aural discharge and without the presence of any perforation of, or scar on, the membrana tympani. Such was the character of the abscess in ten out of sixty-one cases of mastoid abscess in children under fifteen years operated on by the author. These ten cases had the following characteristics in common: (1) In each case the patient was an infant or quite a young child; (2) there was no history of otorrhœa, nor was any perforation of the membrana tympani visible; (3) the abscess formed slowly; (4) there was marked absence of pain; (5) the auricle was not displaced as in ordinary abscess resulting from suppurative otitis media; (6) there was very extensive destruction of bone. But in spite of this there were no symptoms of intracranial complications. From a study of these cases he maintains that it is justifiable to draw the following conclusions: (1) That in young children a form of mastoid abscess not uncommonly occurs in which there is no history of otorrhœa, and in which the membrana tympani appears to be normal. (2) That in three cases the abscess is of slow and painless formation, the patient's temperature not being raised and the ear not being displaced. (3) That in these cases the abscess is due to primary caries of the mastoid, the patch of caries occurring somewhere along the line of the masto-squamosal suture, this being in a young child the softest and most vascular portion of the bone. (4) That if the patch of caries forms in the upper part of the masto-squamosal line, and if perforation of the bone occurs, the dura mater of the middle cranial fossa is exposed and the mastoid antrum is not opened up. (5) That if the patch of caries occurs in the middle or lower part of the masto-squamosal line the antrum is quickly opened up, and then the caries spreads rapidly through the mastoid.

JAMES BURNET (Edinburgh).

Review of Book.

ON THE NATURE, CAUSES, VARIETY, AND TREATMENT OF BODILY DEFORMITIES in a Series of Lectures by the late E. J. CHANCE, F.R.C.S.Eng., Surgeon to the City Orthopædic Hospital. Second edition, edited by JOHN POLAND, F.R.C.S.Eng., etc., Senior Surgeon to the City Orthopædic Hospital and to the Miller Hospital, etc. In two volumes. Vol. I. 8vo. London, 1905.

IN 1868, when Mr. Edward John Chance first published in a revised form the lectures on bodily deformities delivered by him at the City Orthopædic

Hospital between 1851 (the date when the hospital was founded) and 1858, it could hardly be said that orthopædic surgery was generally recognised, even by the medical faculty, as an inevitably independent and important department of surgery. At the present time, as well on the Continent and in America as in this country, the orthopædist (orthopedist, our American cousins spell him) has become a specialist of distinct and definite rank, devoting himself to the intensive culture of his own particular field, formerly left as a kind of debatable borderland between the domain of the general surgeon and that of the purely mechanical instrument-makers. It is almost amusing to find Sir Benjamin Brodie—an undoubted specialist in his own way—protesting in 1860 against the establishment of special hospitals for special forms of disease; it is almost amusing to find Mr. Chance deeming it necessary elaborately to defend his own right to exist, not as a general surgeon, but as an orthopædist pure and simple. The specialists have conquered all along the line in surgery as in all departments of science. But Mr. Chance, himself the defender, the advocate, of specialism, is a living proof that no man ever became a great specialist who did not recognise that he cannot live by the "bread" of his specialism alone. Mr. Chance was "a skilful anatomist, an acute physiologist, a sagacious surgeon, and an accomplished artist": we would add, an excellent writer, with a lucid and effective style. On the first appearance of his work the 'Lancet' asserted that "a book that has so little of the narrow spirit of the specialist in it is rarely seen." Some, indeed, of Mr. Chance's successors might be disposed to say that he erred, if anything, in not more strictly confining the range of his observations to matters of orthopædic practice; and perhaps if the author were now writing his lectures under present-day conditions he might not consider it necessary or desirable to discuss problems of heredity and teratology, with which our vast accumulation of undigested data and the perplexing variety of irreconcilable theories, both in animal and plant physiology, give more than sufficient scope for the fullest energies of the best equipped specialists. At the time, however, when the lectures were delivered the discussion of such problems was quite in place in such a connection, and Mr. Chance showed great acumen in pointing out the weak points of unsatisfactory evidence. Nor was there wanting a fine vein of sly humour breaking out in the reporting of certain "authentic" cases. What could be better for his purpose of turning his opponents into ridicule than the case of the lady who, having been frightened during her pregnancy by the sudden apparition of a naked lunatic, was brought to bed of a naked child?

If Mr. Chance had the misfortune when he died in 1905 to leave the new edition of his work in an imperfect state, he has had the good fortune to have as his posthumous editor Mr. John Poland, the author of 'Traumatic Separation of the Epiphyses,' a work which was hailed by the leaders of his profession as the most important contribution to surgical literature that had appeared for fifty years. Mr. Poland has not edited the book out of existence, but only added apposite notes and new figures illustrative of the text. We recommend the book to the notice of all interested in the history of English surgery.

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Original Articles.

HERNIA IN CHILDREN.

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ALL varieties of herniæ have been recorded in children, but there are two types which stand out most prominently and are infinitely more frequently observed than the others. These are the inguinal and umbilical herniæ.

Femoral hernia is a rare occurrence in children, but many cases are recorded before ten years of age. Cushier reports an observation of femoral hernia in the fœtus. Coley in a discussion on femoral hernia remarks that his youngest patient was two months old. Bull in a series of cases of 1500 herniæ in children observes that fifteen of them were of the femoral type.

Obturator is still more rare than femoral hernia. Berger has seen it at two years of age and Kronlein and Marey at twelve years.

Sciatic hernia has been observed at all ages, even at birth, but a rare form of hernia at any time of life and is excessively rare in a child.

UMBILICAL HERNIA.

It has always been customary to divide the umbilical herniæ of children into (1) *congenital* and (2) *infantile*, a most useful classification from the clinical aspect.

(1) *Congenital umbilical hernia*.—The frequency of this hernia is variously given. Lindfors gives it as 1 in 5184 births at the Munich Maternity Hospital between 1862 and 1881, Block 1 in 5000 births at the Berlin Charité, whilst Vienne did not meet with it once in 3043 births in the Paris Charité.

Two varieties of congenital umbilical hernia may be recognised. The first depends upon an arrested development of the abdominal wall. A variable portion of the abdominal wall may be deficient anteriorly, and the abdominal contents in part may be situated outside of the abdominal cavity. This *fissure abdominis* may reach from the sternum to the pubis, or in some unusual cases may extend up into the thorax, when the thoracic organs may also be eventrated. The fissure may in cases have a much more limited extent and only involve the neighbourhood of the umbilicus. The protruding viscera are in this type only covered with amnion. The peritoneum which develops along with the abdominal wall fails in front, and hence does not form any covering for the viscera. These are not in the strict sense of the term hernia, which implies a protrusion of a viscus from its cavity. They are better designated congenital exomphalos, eventration, or ectopia of the viscera. They are referred to by some as “embryonal” hernia in contradistinction to the second type, which is called “fœtal” hernia. The term “embryonal” conveys a further idea, inasmuch as it indicates the time during development of its formation. The hernia must be present before the end of the third month of intra-uterine life. During the course of the third month the vitelline stalk should disappear, and the intestine, being set free, retires within the abdomen, which closes over it. The contents of these herniæ vary, as also does their size. In the most severe cases the majority of the abdominal viscera are eventrated, even the heart rarely, in the less severe cases intestinal coils, omentum, stomach, and the liver not at all infrequently. The cæcum has been recorded on several occasions. Boggess has reported the pancreas as being present. The simplest type, and that is the type of surgical interest, contains a coil of intestine with or without the omphalomesenteric duct or its remains, adherent on the inner surface of the sac.

The second type of congenital umbilical hernia, called also the

"foetal" umbilical hernia, indicating its coverings, forms after the third month of intra-uterine life, when the peritoneum covers over the umbilical ring, and hence the coverings of this hernia are the amnion externally and internally a thin layer prolonged from the parietal peritoneum. These two membranes are united to each other by a layer of connective tissue, often of a gelatinous nature, similar to that known as Wharton's jelly. These herniæ vary greatly in size; their contents are generally intestine, small and large, and not very infrequently the liver. Meckel's diverticulum may be present, more or less perfectly formed, or merely the remains of the omphalo-mesenteric duct. The smaller herniæ of this kind are often called "hernia into the umbilical cord," and contain a coil of small intestine, with or without a diverticulum. The diverticulum or even the intestine has been snared in the ligation of the umbilical cord. An unusually thick cord should always suggest the possibility of a hernia into the umbilical cord.

These herniæ are not infrequently accompanied by other malformations. Anencephalus, spinal curvatures, spina bifida, club-foot, persistent cloaca, atresia ani, multiple intestinal atresia, and exstrophy of the bladder have all been recorded. Many theories have been advanced to account for congenital umbilical herniæ. No one explanation seems to account for all cases. Deficient development of the abdominal muscles by itself seems to account for some cases. Often the omphalo-mesenteric duct persists in whole or in part, and this persistence may be responsible for some cases, particularly when found adherent at its extremity. The intestine, which should retract during the third month of intra-uterine life, may on account of adhesions be prevented from so doing. The cause of such adhesions is by no means clear. The liver is not very infrequently found as a content of the sac, alone or together with other viscera, and hence by some, particularly Aschoff, an abnormal position of this organ is credited with being the cause of the hernia. Other theories—*e. g.* too great curvature in position of the embryo (Cruveilhier) and too strong traction on the umbilical cord (Müller) have little to commend them.

The diagnosis of this condition is generally perfectly obvious. It is only the smaller herniæ into the cord that may be overlooked. Should the cord be unusually thick at its base suspicion should be aroused. It must be remembered that a coil of intestine may extend some distance into the cord, and even when the ligature has been applied at some distance along the cord intestine has been tied. Herniæ into the cord are often reducible. If this be so the diagnosis

is established. If the hernia be irreducible the size of the cord, its feel, and appearance will generally suffice to establish the diagnosis, and will enable the operator to avoid the misfortune of ligating a portion of intestine. It is generally easy to differentiate the contents of the hernia. Intestine may be distinguished from a solid viscus by its feel and appearance. If the infant is seen shortly after birth these are generally easily distinguished, but should it not be seen until later, when the hernial coverings have become opaque, then a distinction may be well-nigh impossible. The site of insertion of the cord upon the swelling is held by some to be of some importance. If the liver be a content the cord is situated more to the left side of the tumour. This sign must not be regarded as too absolute.

The *prognosis* of this condition is necessarily very grave. Those infants with large abdominal defects are frequently born dead, or only survive birth a short time. As mentioned before, other deformities are often present. The prognosis depends in the main upon the type of hernia, the presence or not of other deformities, the condition of the infant, its age when submitted for treatment, and whether the hernia be reducible or not.

The *treatment* of this condition can only be said to be satisfactory in any measure for the smaller herniæ. The results of the operative treatment are generally considered to be superior to those of the expectant methods. Since the work of Lindfors in 1882 the radical operation for the cure of this condition has become general, and appears to be indicated in every instance where the site of the hernia or other extensive malformations do not interfere with the child's viability. Cures have resulted from operation in the first hour of life.

The following two cases have been under my care :

CASE 1.—This case I have reported elsewhere ("Congenital Intestinal Atresia," 'Lancet,' 1905), and only the brief abstract is given here. It was a female infant with a congenital umbilical hernia. Vomiting commenced soon after birth and increased in severity; it became dark-brown in colour and very offensive. Nothing had passed her rectum since birth. The abdomen became distended and coils of intestine in peristalsis were distinctly seen through the abdominal walls. The child was admitted into hospital on the sixth day of life. The contents of the hernial sac, as shown at the operation, were the lower end of the small intestine, with a Meckel's diverticulum; the latter had probably been ligatured in the cord. The small gut ended blindly, and the large gut being very imperfectly formed, nothing was possible but to perform an artificial anus of the

small intestine. The infant died. The cæcum and ascending colon were represented by a cord-like structure with a very narrow lumen, too small to allow of the passage of the intestinal contents. The large intestine enlarged again in the region of the hepatic flexure, and from here took its normal course, but was much smaller than normal.

CASE 2.—A male infant, admitted into the hospital when one day old. It was born with an umbilical hernia; this gave no trouble to the delivery of the child. There were no other deformities. None of the other children were deformed in any way. On admission there was an umbilical hernia of about three inches diameter, the coverings of which were of a bluish-red tint and commencing to dry. A small portion of this was reducible and was evidently intestine. The greater portion of the mass was irreducible, and was firm and solid, and was diagnosed as the liver. Although the size of this external portion of liver conveyed the idea that there would not be sufficient room for it inside the abdomen, yet it was deemed advisable to attempt this, and so an incision was made over the tumour and the contents exposed. A portion of large intestine was present and was easily reduced. The main mass of the tumour was liver, as had been suspected. This was free from all adhesions, but it was impossible to place this in the abdomen, because when so placed the infant's breathing became hampered. Fortunately, this portion of liver was more or less pedunculated, and having made out that its removal would not interfere with the biliary channels, it was transfixed, ligatured, and removed. The peritoneum was closed first and then the umbilical ring, with one layer of sutures. Time prevented me from dissecting the layers of the abdominal wall and uniting them separately. The infant lived for one day only, and appeared never to recover from the shock of the operation. The portion of liver removed was about two and a half inches in diameter. There were no other deformities.

Zillmer records a case analogous to this. This was a female infant which was operated upon forty-eight hours after birth. Zillmer found a pedunculated lobe of the liver in the sac, and after separating adhesions and ligaturing the umbilical vessels it was ligatured and the stump cauterised. The wound was closed. The course of the wound and the convalescence were undisturbed.

(2) *Infantile hernia*.—This hernia, appearing within a few days or weeks after birth, arises from imperfect closure of the umbilical ring. It is the weakest part of the ring through which the hernia

passes—*i. e.* at the upper part. Weakly and rickety children, and those suffering from intestinal disorders, are frequently the subjects of these herniæ. I have not noticed that divergence of the recti is especially pronounced in these cases. It is always taught that these herniæ disappear of themselves—*i. e.* if some form of pad be placed over the orifice. All authors are agreed upon this. As the child grows the umbilical cicatrix becomes firmer and prevents the protrusion of any abdominal contents. There is no doubt that the umbilical herniæ are very infrequently seen in older children. The cure of these herniæ implies that the pouch of peritonemum must become indrawn when the cicatrix contracts. The peritoneal sac is more or less intimately adherent to the skin. Should this indrawing of the peritonemum fail in any part, presumably a potential sac would still remain ready to be distended again when the abdominal wall has become weakened from any cause—*e. g.* in adult life, when the abdomen has been distended by a pregnant uterus or tumour. It seems quite possible that there may be some relation between these infantile herniæ and the so-called acquired umbilical herniæ of adults. I have only had occasion to operate upon three cases of infantile herniæ; in two of these the indication was the absence of any tendency to contraction, in spite of the classical pad treatment. These were children aged 8 and 10 months. The operation performed was similar to that performed in the adult, *viz.* separation of the sac and closure of the abdominal wall in its different layers. The third case was one of strangulation. Strangulation of an infantile umbilical hernia is very rare, and the notes of the case are worth recording.

Case of strangulated infantile umbilical hernia.—A child, aged 1 year and 3 months, shortly after birth was noticed to have a protrusion of the navel. This increased in size during the first few months and then remained more or less stationary. A pad had been applied by the mother occasionally, but with no regularity. The swelling suddenly increased in size and became painful. The mother tried to replace it, but was unable. Five hours later there was a rounded swelling at the umbilicus, and the child was in great pain. There had not been any vomiting, and the bowels had not acted for some hours. There was no impulse. Gentle taxis under anæsthesia was unsuccessful. An incision was made into the swelling and the sac opened. The latter contained a little fluid and a knuckle of small intestine loosely snared. This was drawn out, examined, and returned into the abdomen. The sac was separated and the peritoneal cavity closed. The operation was not well borne

and so after paring the edges of the ring these were connected by sutures. Recovery was uneventful. Nine months later there was no return of the hernia.

Turner records a case of strangulated infantile umbilical hernia in an infant aged 1 year and 5 months. He operated twenty-four hours after the onset of strangulation. Vomiting was a very marked feature. In the sac was omentum only; this was removed. The infant recovered.

INGUINAL HERNIA.

Inguinal hernia is the type of hernia in children which is of most interest to the surgeon. The direct form of inguinal hernia must be of very rare occurrence in children, I have never seen a single case. Other writers—Stiles, Carmichael and Campbell—in their papers on herniæ in children do not mention it. Bull and Coley in a series of 1500 cases of radical cure of herniæ in children have not seen a case of direct variety.

It is always customary to divide oblique inguinal herniæ according to the nature of the sac into (1) *acquired* and (2) *congenital*. In order to have an acquired sac some weakness of the abdominal muscle must be present. This condition of the abdominal muscles is insufficient for the intra-abdominal pressure and consequently a peritoneal bulge occurs at the weakened spot. Whilst operating upon these herniæ in children one cannot fail to appreciate that there is no such weakness of muscles in the majority of cases, the internal oblique being quite well developed. In large herniæ, quite true, there may appear to be present an ill-developed internal oblique. But this should be regarded as an effect of the hernia rather than the cause. A large hernial sac more or less constantly occupied would of necessity cause some thinning out of the muscles guarding the hernial orifice. There seems very little reason for supposing that feebly developed musculature is responsible for inguinal herniæ in children. The knowledge of this fact explains the very satisfactory operative results which attend these herniæ in children. Should the condition depend upon primary muscular weakness it is only to be expected that the hernia would recur after operation. This is *most* unusual. As a further argument against the acquired origin of the sac may be mentioned the form and shape of the latter. In the majority of cases the most superficial examination of the sac will reveal its congenital origin. The sac is often irregular in its interior, sometimes showing almost complete septa, more often constrictions, flaps, or valves.

Not infrequently the sac is somewhat hour-glass in shape or distinctly lobulated. All these appearances in the sac are obviously produced in one and the same way, viz. by attempted (but very imperfectly so) obliteration of a congenital processus vaginalis. The sac at the site of the internal ring is often very narrowed, as would be expected if it were of congenital origin. This narrowness here is accountable for the comparative frequency of obstruction and strangulation. Even when such conditions of the sac are not obvious at a glance, stretching out the sac and a little more careful examination of its interior will, in the majority of cases, reveal something of the sort, which is sufficient to stamp the sac as one of congenital origin. Other, but perhaps less important, arguments may be advanced in favour of the congenital origin of hernial sacs in children. It is quite a common experience to have some difficulty in obtaining the descent of the hernial contents. If the sac depended upon primary muscular weakness it ought to be habitually occupied, its neck not being supported sufficiently. The size of the hernia when first noticed also appears to me to be of some value. The hernia is often of quite large size on its first appearance; unless a preformed sac were present this could not possibly be so. This is a point often noticed in the adult also. The age at which herniæ first appear gives no idea of the nature of the sac. From these reasons given it seems only too probable that an acquired hernia ought to be erased from the nomenclature of herniæ in children. Similar arguments might be advanced in the case of herniæ seen in adult life, and some writers, Hamilton Russell in particular, maintain that all herniæ at all ages are of congenital origin, and their reasons, in the majority of cases, are most convincing.

Dismissing the acquired hernia as probably not occurring in children, all herniæ have as their sac the processus vaginalis in whole or in part. The classification which I give of these herniæ is (1) *total funicular*, and (2) *partial funicular*. A *total* sac is one where the whole processus vaginalis is patent, and a *partial* is one where the processus vaginalis is obliterated at some part and its upper portion only forms the sac. There is nothing mysterious about the *encysted* type of sac. In this the processus vaginalis is obliterated at a spot some distance above the testicle, and a partial funicular sac bulges into a capacious tunica vaginalis, which may or may not contain fluid. Differences in the level of the obliteration of the processus vaginalis serve to explain the varieties of encysted herniæ. Minor types of this are by no means infrequent,

large and well-marked examples are not common. It is only a difference in degree.

During the past few years the treatment of inguinal herniæ in infancy and childhood has become a much more radical proceeding than formerly. The operative method of treatment is becoming much more frequent, and from knowledge gained at operations it is possible to give statistics of the relative frequency of the total and partial funicular sacs.

It is generally thought that the sac in infancy and childhood is a total one. This is entirely wrong. In my series of 100 cases of operations upon male children (*excluding*, of course, those cases associated with an imperfect descent of the testicle) I have found a total sac in only 7 of them—*i. e.* in 7 per cent. of cases. Stiles in 300 consecutive operations on boys found a total sac in only 5 per cent. Carmichael found a total sac in 7 cases out of 133 radical cures performed. Campbell estimates a total sac occurs in about 5 per cent. of cases. From these figures it will be seen that the most frequent form (occurring in about 93-95 per cent. of cases) is the partial funicular sac. Of the frequency of the encysted form of herniæ I have kept no note. It is not uncommon for the sac to extend some distance into the scrotum and for the tunica vaginalis to extend a little distance up the cord. This is the simplest type of encysted hernia. All degrees are met with of this type, and regarding such merely as partial funicular sacs, I had not considered it worthy of noting their frequency and the relative dispositions of the hernial sac and the tunica vaginalis.

Interstitial hernia is infrequent in the child apart from the hernia associated with incomplete descent of the testicle. The largest series of cases of herniæ in children is reported by Bull and Coley just twelve months ago. These authors collected 1500 cases of herniæ of all varieties upon which operation was performed; 709 of these were of the oblique inguinal type, and deducting from this 85 cases of hernia complicated with non-descent, or imperfect descent, of the testicle, the series comprises 624 cases. Properitoneal hernia was not observed once in this series. True, they record 77 cases of the interparietal type of hernia, but included in this are the herniæ complicated with undescended testes. The extra-parietal interstitial hernia was observed 7 times. The situation of the testicle is not given in these cases. Greene-Cumston has recently reported a case of interparietal interstitial hernia in a girl aged 9 years. I have not had a single example. Stiles and Carmichael in their papers do not mention it.

Contents of the sac.—In the majority of cases at the operation the sac is empty, and so the relative frequency of the hernial contents it is impossible to estimate. I have never made any attempt to find out the viscus nearest to the internal ring. It often happens that during the operation from some straining effort intestine or omentum is forced down, and not infrequently the cæcum. The small intestine would naturally be the more frequent content. Omentum I have only found necessary to remove on three occasions. In one case the omentum was tightly nipped at the internal ring, and was the only visceral content of the sac, which was distended with fluid; in fact, it was a hydrocele of the sac, and will be referred to later in dealing with strangulation.

HERNIA OF THE CÆCUM AND APPENDIX.

It is impossible to estimate the frequency with which the cæcum and appendix are found in an inguinal hernial sac, since the latter is so often empty at the operation. But there is no doubt that it is not at all an infrequent content of a right hernial sac. When the sac forms a complete covering for the cæcum, and the latter slips into it by virtue of its elongated mesentery, the relationship is identical with the prolapse of the small intestine, and is of no great interest except in those important cases of strangulation, adhesions, or inflammation in or around the appendix, and to which reference will be made later. Of great interest from the point of treatment are those cæcal herniæ with an incomplete sac. These are variously called “congenital cæcal herniæ,” the “sliding” type of hernia, or herniæ *par glissement* of the French writers. In this variety the cæcum raises the posterior wall of the sac, the peritoneum is reflected from the sides of the cæcum to the sac wall, leaving the posterior aspect of the cæcum uncovered by serous membrane. This uncovered area is of variable extent: it may be only at the site of the internal ring, or it may extend some distance into the scrotum. Cæcal herniæ may be of some size, often irreducible, difficult to retain by a truss, and not infrequently become incarcerated or even strangulated. Stiles found the cæcum present in the sac in 24 cases (7 per cent.). In all these the sac was complete. In two instances, however, the lower end of the mesentery was attached to the posterior wall of the sac, and had to be divided before the bowel could be returned within the abdomen to enable a ligature to be put sufficiently high around the sac. These two cases were examples, in a minor degree, of the sliding type of hernia. Bull and Coley, in 34 cases of hernia

of the cæcum or appendix or both, found 8 of these were of the "sliding" type. In my series of cases I have had two of this variety. The ages of these children were eight and six months respectively. The hernia in each was noticed soon after birth. At first the herniæ were said to have been completely reducible, but when presented for treatment complete reduction was impossible. The reducible part of the hernia was in each case in great part small intestine. In the posterior wall of the sac was the cæcum. The latter was separated from the tissues behind and forced upwards. The anterior and lateral portions of the sac were removed, and the aperture into the peritoneal cavity closed with sutures as effectually as possible. The inguinal canal was closed after Bassini's method. Such cases might be expected to relapse more frequently than those herniæ with a complete sac, since there is no neck of the sack to close, and the peritoneum around the internal abdominal ring cannot be made taut. These cases were operated upon twelve and fifteen months ago, and at the present time the canal is sound.

With the cæcum the appendix is generally also present. The appendix may present alone. It is the rule with most surgeons at the present time when they meet with a healthy appendix in a hernial sac to remove it. Stiles says he was in the habit of removing it only when it showed some trace of disease, but latterly he has removed it in every case, as it only adds a few minutes to the operation. Carmichael has removed it in seven cases, and in five of these it was healthy. I have removed a healthy appendix on three occasions.

Of considerable interest are those cases in which the appendix is found diseased in a hernial sac. The appendix may be tuberculous, of which Carmichael reports an example. More often it is inflamed similar to when situated in the abdomen. Strangulation of the appendix may also occur. Of the latter I have had one example in the child. Of appendicitis I have had three examples, an unusually large percentage of appendical disease, in the hernial sac. Two cases I have recorded in the 'Reports of the Society for the Study of Disease in Children,' vol. v; they are briefly as follows:

CASE 1.—Male child, aged 3 years and 8 months, never noticed to have had a hernia. The illness commenced with abdominal pain, centred around the umbilicus. Some hours later the child complained of pain in the right groin. The right side of the scrotum became swollen, as far as the abdominal ring. The temperature was 102° F. On the third day of the illness an abscess was evidently

present and was incised. A hernial sac was unsuspectingly opened, and the terminal portion of a diseased appendix was seen in it. The abscess was drained, and healed in about three weeks.

CASE 2.—A boy, aged 8 years, when an infant had suffered from a right inguinal hernia, wore a truss for some months, and was thought to have been cured. His illness began with some abdominal discomfort; on the following day complained of pain in the scrotum, and the temperature was 100° F. In two days' time his symptoms disappeared. After this he frequently had some pain in the scrotum. A second attack of abdominal and scrotal pain occurred a little later. The right side of the scrotum was thickened by a cord-like structure running from the testicle up the inguinal canal. The appendix was diagnosed. This was verified by operation and removed. It was intimately adherent to the tunica vaginalis, but nowhere else; its distal portion showed chronic inflammatory changes.

I have appended some remarks upon the diagnosis of the condition in this article.

CASE 3.—A boy, aged 6 years, who had suffered from a hernia since birth. For this he had at one time worn a truss and was considered cured. One day a painful swelling formed in the right inguinal region and the boy was said to have been feverish and was sick. This was thought to have been the return of the hernia. The symptoms disappeared in a few days, but the swelling did not quite disappear. At the operation a swollen appendix adherent to the tunica vaginalis and slightly to the sac-wall was found and removed.

A fourth case I had had of a boy, aged 6 years, with a right inguinal hernia, who had worn a truss for some time. The only content of the sac at operation was the appendix. This was adherent to the tunica vaginalis, and was thickened by inflammation. The truss was no doubt responsible for these changes, and it was not a case of primary appendicitis. There were no symptoms of the latter. The meso-appendix was considerably thickened in this case. In a fifth case I removed a large, swollen, and catarrhal appendix in a baby of 11 months. This had been symptomless. The sigmoid colon is very rarely seen in hernial sacs in children. Carmichael records one case and Bull and Coley two cases, one of which was strangulated.

HERNIA OF THE BLADDER.

Five times I have seen the bladder whilst performing the radical operation. But not in all these cases can the bladder be said to have been a content of the sac. In isolating the neck of the sac and dragging upon the peritoneum the bladder has been drawn into the wound. During this manipulation I have noticed a mass of extra-peritoneal fat precedes the bladder, and may be taken, perhaps, as a warning that a little more traction on the inner aspect will expose the bladder-wall. In one case of my series the bladder was definitely a hernial content. There are three different types of hernia of the bladder or cystocele: (1) without sac, a rare variety, in which the anterior or lateral surface uncovered by peritoneum enters the inguinal canal; (2) with incomplete sac, in which the bladder raises the sac-wall, and is only covered on one aspect with peritoneum—this is the common type; (3) with a complete sac, a very rare form, in which the protruded portion of bladder is completely surrounded by the peritoneum.

Case of hernia of the bladder.—Male child, aged 1 year and 1 month. A right inguinal hernia had been noticed shortly after birth; it appeared completely reducible. After opening the inguinal canal it was noticed that there was a quantity of fat around the cord. The sac was by no means easily found. This quantity of fat around the cord led me to suspect that the bladder might be quite close, and considerable care was taken not to cut anything of uncertain nature. The sac was eventually found, it was very thin, and on its inner wall was a distinct thickening in the region of this excessive fat. Careful separation of the fat revealed the bladder as a content of the hernia after the second type. The sac was separated, the bladder pushed back, the peritoneum separated from it as far as possible, a portion of the sac was cut away, and the hole into the peritoneal cavity sewn up. The inguinal canal was closed according to Bassini's method. There were no urinary symptoms in this case.

It seems quite easy on dragging upon the peritoneum in the region of the internal ring to draw out the bladder. When I have done so I have separated the peritoneum from it as far as possible, and placed a ligature around the neck of the sac in close proximity to the bladder. No urinary symptoms had ever been noticed in these cases.

INGUINAL HERNIA IN THE FEMALE CHILD.

There were 7 examples of this. In 5 cases the sac was

empty at the time of operation and in 2 cases it contained the ovary and Fallopian tubes.

The sac in the female is the patent canal of Nuck. It is much less frequently seen than in the male. In my own series about 7 per cent., in Carmichael's series about 12 per cent, and in Stiles' cases 36 in 360 were female children. In female children the herniæ are usually quite small, strangulation is rare, and the cæcum and appendix are infrequent contents.

The two cases which contained the ovary and tube were aged 2 and $4\frac{1}{2}$ years. In both cases the "swelling" was asserted to have only been present a short time before operation. The hernia was irreducible in both cases. The sac was continuous with the peritoneum of the broad ligament—*i. e.* the mesosalpinx was attached to the posterior wall of the sac. The contents could not be reduced until this portion of mesosalpinx was divided close to the tube and then tube and ovary were pushed just inside the internal ring. The tube in each case appeared excessively long. In one case the ovary was round and somewhat congested, as was also the tube, seeming as if the internal ring had caused some interference with the blood-supply. In the other case the ovary was quite soft and elongated. In neither case was it possible to feel the uterus with the finger through the internal ring. By rectal examination the external shape and size of the uterus appeared normal. Whenever possible a herniated ovary should be replaced. The size, shape, and consistency of ovaries in children differ markedly. It is very difficult or impossible to recognise disease of the ovary from external appearances. It does not seem justifiable to remove an ovary in a child unless obviously damaged or diseased by such complications as strangulation or pedicle torsion, or unless it be irreducible as it may be when situated low down in the sac.

TUBERCULOSIS OF THE SAC.

I have had two examples of this.

CASE 1.—A boy, aged 3 years, had been known to have a right inguinal hernia for twelve months. A truss had been worn, but this was ineffectual in retaining the hernia. During the operation the sac was noticed to be very thickened; it was opened and on its interior were a number of miliary tubercles (confirmed by microscopical examination). The sac was a partial one; it was removed and the canal closed. Before closing the sac a portion of intestine was

drawn down and this was found to be studded with miliary tubercles. There was no escape of fluid from the peritoneal cavity. On examining the abdomen whilst still under anæsthesia there was felt some indefinite mass in the lower abdominal area. The child had never suffered from any symptoms of tuberculous peritonitis.

CASE 2.—A boy, aged 2 years and 8 months, had had a hernia since infancy. A truss had been worn but was ineffectual. On opening the sac some fluid escaped from the peritoneal cavity, and on examining the interior of the sac numerous miliary tubercles were scattered over it and also upon a coil of small intestine which herniated during the operation. The sac, which was a partial one, was removed, after compressing as much fluid as possible out of the abdomen, and the canal closed. On examination of the abdomen at the close of the operation nothing was felt abnormal. The child made a speedy recovery and now, sixteen months later, is in sound health. The ascites in this case was overlooked before the operation. There were no abdominal symptoms. The tuberculosis was proved by microscopical examination of the sac. Tuberculosis of the hernial sac is found more frequently in the child than in the adult. Hernia being more frequent in the child and tuberculous peritonitis being more often unattended with symptoms in the child might account for this. Many surgeons have recorded examples of this condition and have apparently operated not suspecting the real state of affairs. In many cases abdominal tuberculosis has been present as in my two cases; in some cases the testicles have been tuberculous; in others the ovary and tube or contents of the sac have been diseased; in others, again, the case is recorded as an isolated tuberculosis of the sac. Full reports of some cases are wanting, but it appears that in children the condition is most frequently associated and merely a part of abdominal tuberculosis. The same variety of the lesions have been described in the hernial sac as in the peritoneum—the ascitic, the dry, and the caseating types.

The diagnosis of this condition is not often made, nor is it easy. A sac containing fluid in the child, and particularly if there be such a sac on both sides, should always be regarded with suspicion and lead to careful examination of the abdomen. A sudden and painful enlargement of a hernial sac, irreducible or only in part reducible, without signs of strangulation, should excite suspicion of the ascitic form. If there be evidence of abdominal tuberculosis, then the diagnosis may be easy, but usually in these cases the abdominal signs are absent, and then the true condition is unsuspected.

STRANGULATION.

Eight of my series were strangulated and operated upon as such. The ages were five weeks, four months (three cases), six months (two cases), one year and ten months, and three years and nine months. All these were submitted to taxis under chloroform before being operated upon. A strangulated hernia in an infant is so often reduced in this way that it always seems worthy of a very fair trial. In one case a hæmatoma of the mesentery formed, probably as the result of taxis, and this led to considerable trouble in its reduction at the operation; before the hernia could be reduced the neck of the sac had to be freely divided. The peritoneum was drawn down from the neighbourhood and the sac closed and removed. The wound suppurated superficially. In an infant of five weeks the cæcum and appendix were the contents of the sac. The cæcum was much distended and had to be punctured and the pus allowed to escape before it could be reduced; the appendix was removed. In a child of one year and ten months the appendix was the sole content of the sac. This infant was not known to have had a hernia previously. The child was suddenly taken ill, screaming out as if with abdominal pain; a swelling formed in the right inguinal region, and this increased in size. This swelling was rounded, tense, and elastic, filling the inguinal and upper scrotal tissues. It was very tender, without impulse, and irreducible. The testicle was in the scrotum at the bottom of the swelling. The bowels had not operated and the child had not been sick. Twelve hours after the onset on opening the sac, which was a partial one, some turbid fluid escaped; the external oblique was incised over the canal and the appendix was found as the sole visceral occupant. After stretching the internal oblique and straightening out the sac the appendix was drawn down with the cæcum and removed in the usual way. A radical cure was performed and recovery ensued. In a male child of three years and nine months the omentum was strangulated and the sac occupied with fluid. On division merely of the external oblique the omentum could not be drawn down, but after stretching the internal oblique and making some traction on the sac, the omentum was released, drawn down, removed, and a radical cure performed. In operating upon these cases of strangulated herniæ I always incise the external oblique before opening the sac, and in only two cases has this division of the external oblique allowed of the reduction of the hernial contents. The site of strangulation in these two cases appeared to be at the external

abdominal ring. In the other cases the site of strangulation appeared to be farther up at the site of the internal ring. Stretching of the internal oblique and some traction on the sac so as to open out the internal aperture succeeded in allowing of reduction in all save one case, when the gut could not be reduced until the tissues of the internal ring had been divided from within. The difficulty in reduction here was a hæmatoma of the mesentery.

Reference to statistics shows that strangulated herniæ in the majority of cases in children occur in infancy within the first twelve or eighteen months of life. More occur within the first six months than in any other equal period. From inquiry into the literature of recently reported cases I estimate that during the second month is a very frequent age for this complication to arise.

Strangulated hernia in the infant is perhaps a trifle different to when occurring in later childhood or adult life. The strangulation is often slighter and more often easily reduced by taxis. When the abdominal muscles are relaxed under anæsthesia the hernia often reduces spontaneously, and if not so it may often be readily reduced by slight pressure. The symptoms do not seem so urgent: vomiting, so common in the adult, is often absent in the infant; the local pain and tenderness are often not very acute; the general symptom, collapse, is often not so evident.

The prognosis of strangulated hernia in the infant is becoming better every year. About ten years ago the mortality was estimated at 30 per cent. From recently reported cases I estimate it now at 8-10 per cent. The fatal cases have nearly always some explanation. The infant is described as weakly, or with some septic condition on it, and a fatal result may ensue from collapse or sepsis.

TREATMENT.

For a long time the "truss" was considered the method of treatment most suitable for herniæ in infancy and childhood. This is now a thing of the past. The proportion of cures by the truss treatment it is impossible to estimate. The difficulty in tracing these children for a long period is very great, as everyone knows. The fact that a hernia has not been noticed for some months or years is no guarantee of its cure. For these herniæ, depending as they do on the presence of a congenital sac, and not on any primary weakness of the abdominal wall, may be retained indefinitely. This is well known from a study of herniæ in adults. In many herniæ which have appeared for the first time in adult life an examination of the

clinical signs and the sac afford evidence that they are of congenital origin. In many cases in children which have been regarded as cured by the truss by taking the cord between the finger and thumb a distinct thickness is appreciated, this being the unobliterated hernial sac. Too much stress must not be laid upon this, since it is possible (but very improbable) that the communication with the abdomen may have been effectually obliterated and the sac may remain. The processus vaginalis should be separated from the abdominal cavity just before or at the time of birth. Presumably this may be delayed. If an infant be noticed to have a hernia shortly after birth, a truss which effectually controls the hernia and constantly prevents any escape of abdominal contents into the sac may theoretically result in a cure. The cure in such cases would be brought about by natural means, the date of closure of the processus vaginalis being for some reason or other delayed. Such a cure is inconceivable after some weeks or months, and especially so when the hernia is constantly descending. The most that a truss can do is to prevent the escape of abdominal contents into the sac and allow Nature to close the latter. It is highly improbable that this closure could be effected after a few weeks, and hence should a hernia be known to descend in an infant a few weeks after birth its only cure is removal of the sac by operation. The reluctance with which these operations are approached by some is probably accounted for by the belief in the truss as a curative measure and also by the erroneous idea that operations are not well borne and sepsis is likely to result. I have not had a single death (including the cases of strangulation) and only three times has suppuration occurred. Excluding these three cases of suppuration (one of which was a strangulated hernia, one a congenital cæcal hernia which occupied some time in reduction, and one a case operated upon three days after attempted strangulation, the tissues being still œdematous) not a single complication occurred. Statistics of others bear similar testimony to the excellent results obtained from operation.

The ages at which operation was performed in my series: in the first six months of life, 18 cases, including 6 cases of strangulation; between the seventh and twelfth month, 28 cases; during the second year, 26 cases; after the second year, 35 cases.

The point to consider is the age at which operation should be performed. The objections to operating in quite young infants—say in the first three months of life—are possibly the necessary weaning of the infant (this is necessary, as a rule, in hospital, but not in private practice), and, secondly, the tender skin of the infant

excoriates so readily that sepsis may ensue. The latter argument is more often imaginary than real; but, nevertheless, it must always be remembered that the operation is performed for a condition which in by far the majority of cases does not endanger life. After the third or fourth month it is, I consider, quite safe to operate unless the operation entails weaning of the infant. In a breast-fed infant I should defer the operation until the child is weaned and is known to be thriving on its new food, unless there is some special indication for an early operation. The indications for operating earlier are (1) strangulation, (2) two or three attempts at strangulation with difficult reduction under anæsthesia, (3) some cases of irreducible herniæ which are liable to become strangulated, (4) large herniæ which frequently mean cæcal herniæ, and are not retained by any truss, (5) any case in which the hernia cannot be retained by a truss. In any case in which these conditions are absent I consider it best to wait until after the sixth to eighth month until the child is weaned; the infant, of course, must be otherwise healthy. In a bottle-fed healthy baby the operation may be safely undertaken at the fourth month.

The technique of the operative procedure I employ differs somewhat according to circumstances. I always incise the external oblique from the apex of the external abdominal ring upwards and outwards a little distance above Poupart's ligament. The inguinal canal in the child, and especially in the infant, is very short, but granted that, I think the internal ring cannot be sufficiently exposed without freely opening up the inguinal canal. The sac is generally easily identified by stretching fully the tissues of the cord and incising the cremaster fibres which spread out over it. The sac is opened, and the cord is easily separated. I separate the sac right up to the internal ring, and then after a little traction on the sac and pushing aside of the tissues around, the neck of the sac is clamped and torsioned, then ligatured and removed. This serves to render taut the peritoneum on the inner aspect of the inguinal canal, and it also accounts for the comparative frequency with which I have seen the bladder (five times). An excess of sub-peritoneal fat on the inner side I take as a warning that the bladder is near. If the sac be a total funicular one, I divide it a little way below the external ring, and then treat the upper portion similarly. The lower part of the processus vaginalis I pay no further attention to, but simply leave open. If the sac be partial but very large, I treat as a total one by dividing it across and separating and torsioning it as above, believing that this takes less time and will cause less bleeding, and

the risk of a hæmatoma of the scrotum will be lessened. This method leaves behind a considerable portion of the sac, which produces no harm. The method of closure of the inguinal canal varies with the size of the hernia, and also depends upon whether the internal oblique has been thinned out by pressure or not. In the majority of cases with a well-developed internal oblique I pass a couple of sutures through it, the torn cremaster, and Poupart's ligament over the cord. But in the larger herniæ and those where the internal oblique has been weakened a more secure wall, I think, results from the suturing of these structures behind the cord. The cut margins of the external oblique are merely sewn together if this tendon is not very lax, but if the latter condition be present I overlap the edges of the external oblique in two layers of sutures. I have always employed deep sutures in the subcutaneous tissue (generally three suffice) to avoid any reactionary hæmorrhage which may so readily occur from the thick layer of subcutaneous fat developed in this region in infants. The skin edges are approximated by a subcuticular suture. All buried sutures are of catgut. I have not personally known of a recurrence, but in infancy and childhood such cases are recorded. Should recurrence occur it is generally said that it will be in the first six months. I have had occasion to operate upon two cases of recurrent herniæ in children of four and eight years of age respectively. But these can hardly be called recurrent herniæ since in each case the sac was untouched at the first operation.

A CASE OF SARCOMA WITH SECONDARY INTRA-CRANIAL GROWTHS IN A CHILD OF FIVE.

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WHILE cases of sarcoma in children are, unfortunately, far from rare, the following case presents so many points of interest that we venture to record the notes in full.

The case is that of A. N—, a boy aged 5 years, who was admitted into the Hospital for Sick Children, Newcastle-upon-Tyne, on May the 10th, 1905. The *history* given was that six weeks prior to admission patient fell from a hand-cart. No gross injury was

observed at the time, but patient subsequently became listless and languid. Three weeks later he complained of severe pain in the back, and a week after that the eyelids became somewhat discoloured, assuming a yellowish hue. Subsequently this discoloration deepened, and the lids became dark blue-black and swollen. For three weeks before admission he complained of pain in the elbows and at the back of the neck and in the abdomen. Micturition became infrequent, and the urine was high-coloured. There was lack of appetite and gradual wasting, but no vomiting.

His previous history contains nothing of note except that a few months before admission adenoid growths had been removed from his throat at the hospital. There was nothing suggestive of hæmophilic tendency in his own personal or in the family history.

FIG. 1.



On admission.—There was slight wasting but no marked emaciation. Patient's facies was somewhat striking, there being marked double proptosis, with considerable swelling and discoloration of the eyelids. There was no subconjunctival hæmorrhage. The lips were swollen and crusted with sordes, etc. (see Fig. 1). The skin generally presented a peculiar yellowish, waxy pallor. On the left side of the head, just above the ear, was a small, painless, elastic swelling the size of a hazel-nut, apparently lying in the pericranium. Above and in front of the right ear was a small, diffuse swelling. Patient was drowsy and heavy, but became very irritable when roused. He complained of pain in the head and neck and down the spine, though there was no tenderness on percussion over the spine. Vision was impaired, but there was no apparent defect in hearing. The superficial and deep reflexes were slightly impaired, but could

be elicited. There were no abnormal muscular movements and no spasticity, and Kernig's sign could not be obtained. There were no signs of hæmorrhage into the muscles or subperiosteally.

On examining the abdomen the superficial veins were seen to be distended, and there was a slight hæmorrhage over one of them. The abdomen was slightly distended, and was tympanitic everywhere except in the right flank, where there was dulness over a large mass apparently connected with the liver; the latter organ was enlarged, its lower border reaching the umbilicus in the mid-line, and extending to within $\frac{1}{2}$ in. of the crest of the ilium in the flank; its upper border reached the fourth interspace in the mamillary line.

Numerous small glands were palpable on both sides of the neck, in the posterior triangles, and in the inguinal and axillary regions.

FIG. 2.



No glands were palpable in the popliteal and epitrochlear regions. The spleen was not enlarged.

Examination of the blood.—A count of the cells was as follows: Red blood cells, 2,050,000; hæmoglobin, 50 per cent.; colour index, 1.2 (approx.); white blood cells, 10,000.

Examination of stained film revealed considerable variation in the size and shape of the red cells, many of which showed granular degeneration. No nucleated red cells were seen. A differential count of the white cells gave the following result: Polymorphonuclear, 41 per cent.; lymphocytes, 44 per cent.; large hyaline, 9.2 per cent.; eosinophiles, 4.4 per cent.

Examination of the eyes.—As already mentioned, there was marked double proptosis. There was no strabismus, except in extreme movements to either side, and no nystagmus. The pupils were equal, slightly dilated, and reacted sluggishly to light. Corneal ulceration

was commencing in the right eye. Owing to slight opacity of the lens the optic disc could not be clearly seen in the right eye; the left disc showed a considerable degree of neuritis.

Examination of the respiratory system revealed nothing of note. The heart was slightly pushed up, the apex beat being in the fourth space. There was a hæmic bruit over the base of the heart and up the veins of the neck. Followed up the neck, the bruit gained in intensity, being extraordinarily loud and harsh all over the head, and reaching its maximum intensity along the lines of the lateral and longitudinal sinuses. Running across the scalp in the line of the coronal suture was a dilated vein the size of a cedar pencil (see Fig. 2).

FIG. 3.



The *urine* was scanty, acid in reaction, specific gravity 1018. It contained a trace of albumin and had a heavy deposit of uric acid crystals. It did not contain any blood or casts.

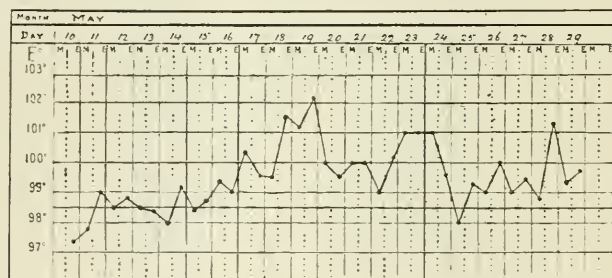
Subsequently the patient gradually lost strength. He became very drowsy and eventually comatose. His temperature was at first barely normal, but a week after admission it became elevated and irregular, the highest point it reached being 102.2° F. on May the 19th (see chart, p. 398). Throughout patient was constipated and required purgatives. There was never any vomiting. He complained much of pain at first and opiates had to be given, but he subsequently became quieter. Towards the close he used to lie quiet all day, but one day he evinced a peculiar mental alteration, and for the whole of that day kept calling out and requesting to be put in a coffin.

The proptosis became more and more marked and the corneal ulceration and chemosis increased (see Fig. 2). Ultimately the cornea of the right eye ruptured and the iris protruded (see Fig. 3).

The blood showed progressive diminution of the red cells and *pari passu* of the hæmoglobin, the colour index remaining practically constant throughout. On May the 17th the red cells numbered 1,750,000, and the hæmoglobin was 40 per cent.; these diminished until May the 27th, when they reached 900,000 and 20 per cent. respectively.

On May the 20th œdema was observed in the right flank and this progressed until the termination.

With a view to relieving the headache, lumbar puncture was performed on May the 17th and again on May the 20th. The fluid obtained was quite clear, with a pale yellow tint. Its specific gravity was 1005·8 and analysis showed: Total solids, 1·404 per cent.;



inorganic solids, ·720 per cent. (of which ·310 per cent. was chloride); organic solids, ·684 per cent.; albumin, ·4 per cent.

The pressure of the cerebro-spinal fluid, as measured by a manometer, using the fluid itself as an indicator, reached the extraordinarily high figure of 80 cm. ($31\frac{5}{8}$ in.). About nine fluid drachms were withdrawn, after which patient appeared to be rather more fully conscious and to appreciate pain more. The distension of the veins of the scalp, after being extremely well marked, suddenly subsided on May the 24th (see Figs. 2 and 3), but the hæmic murmur in the veins of the head and back remained audible. A somewhat similar bruit was noted on May the 28th over the liver. The urine remained scanty and high-coloured throughout and always had a deposit of uric acid crystals. On May the 23rd analysis showed the uric acid to form no less than ·23 per cent. of the total urine, the total solids amounting to 3·34 per cent. Latterly traces of cholesterin were present.

Patient gradually sank and died May the 30th, 1905.

Post mortem.—The *liver* was enlarged. In its right lobe was a thick mass of new growth of a whitish hue, which infiltrated the entire thickness of the organ towards its lower edge, and projected on its under surface in a rounded boss the size of a hen's egg.

Retroperitoneally there was a large nodular mass of new growth similar to and connected with that infiltrating the liver. This mass occupied the middle line and the right retrohepatic region, pushing the liver forward and flattening it, and surrounding and involving the *right kidney*, which could not be separated from it. This kidney was pale and anæmic and its upper pole was infiltrated with new growth; its medulla was soft and in places necrotic. The *left kidney* was pale but otherwise normal. The *spleen* was congested and showed some perisplenitis. The *heart* and *lungs* showed no sign of new growth. In the *mediastinum* were some enlarged *glands*, one the size of a hazel-nut, lying on the upper surface of the diaphragm to the right of and behind the sternum. The ends of the *ribs* were congested, and the *sternum* was infiltrated at the back of the manubrium by a small patch of new growth.

In both *temporal regions* were soft masses of new growth infiltrating the pericranium. On removing the calvarium it was found that the space between the *dura mater* and the inner table was infiltrated by soft, dark red new growth. This was particularly widespread over the vault, but was also found over the base. It appeared to follow the line of the sinuses and in front of the sella turcica and torcula herophili there were large masses of it. It spread through the foramina into both *orbits*, forming large masses, pushing forward the globes, and it also communicated through the bone with the masses in the temporal regions. The coronal and sagittal sutures were forced open, and the bones taking part in their formation were easily separable.

The *brain* was markedly compressed and anæmic, but showed no signs of infiltration with secondary growths.

Examined microscopically, the growths were all found to be composed of small, round-celled sarcomatous tissue.

The bones of the limbs and spine were not examined.

The above case presents several points worthy of comment. The facial appearance on admission was exceedingly striking, and suggested the possibility of: (1) scurvy, (2) thrombosis of the cavernous sinus leading to hæmorrhage into the orbits, and (3) new growth, either involving both orbits or the region of the sella turcica. Scurvy was soon put out of court from the complete absence of

anything in the history suggestive of faulty nutrition, and the absence of hæmorrhages either into the periosteum or the muscles. The mouth was very foul, but the gums were not spongy. The proptosis became so intense (the corneæ sloughing and causing almost complete disorganisation of the globes before death) that it could scarcely have been possible for hæmorrhage alone to have caused it. The steady progression of this sign and the severe headache pointed to the probability of new growth being the condition present. It is interesting to note, however, that there was no vomiting—a sign of intra-cranial tumour which one would certainly have expected. Examination of the abdomen amply confirmed the probability of new growth, the large mass in the right flank being scarcely accountable on any other theory. The question of the nature of the new growth was also of interest. The age of the patient, of course, suggested sarcoma, but the peculiar facies strongly suggested the possibility of the tumour being of the nature of chloroma, a possibility which gained strength from the great resemblance of the patient to the photographs of a case of chloroma published by Dr. Melville Dunlop—a resemblance greater than appears in the accompanying photographs.

Chloroma is usually accompanied by certain blood changes, which should suffice to differentiate it from other new growths, viz. blood changes resembling those of lymphatic leukæmia. In the present case there was profound and progressive anæmia, but the white cells were not markedly increased, never numbering more than 10,000, except two days before death, when they rose to 13,600; and though the lymphocytes were as numerous as the polymorphs, they were never markedly in excess. In the present case the blood showed no other change of note beyond the extreme diminution in the number of red cells and the presence of those alterations in their size, shape, and staining reactions which accompanying all profound degrees of anæmia.

The optic neuritis was intense, and could easily be accounted for by the pressure behind the globes.

Other signs of intense intra-cranial pressure were the presence of the extraordinarily loud hæmic murmur in the large veins, and the very high pressure of the cerebro-spinal fluid. The latter was measured by means of a simple manometer devised by one of us, the fluid itself being used as the indicator. The pressure of several cases (including cases of acute and of chronic hydrocephalus) had been estimated with it, the pressure recorded usually being between 6 and 12 inches. In the present case the fluid ran up to the great

height of 80 mm. ($31\frac{1}{2}$ inches), and at this height showed slight, but regular, variations corresponding to the pulse and respiration. Though this may not have been the maximum pressure attained in this case, it is probable that the pressure fell prior to death, as the veins of the scalp became almost collapsed four or five days before death (compare Figs. 2 and 3). The withdrawal of cerebro-spinal fluid in a case of intra-cranial tumour is stated to be accompanied by grave risks. In the present case, however, no ill-effects followed the abstraction of six, though patient subsequently appeared to appreciate the pain in the neck to a greater degree, possibly owing to his sensibility becoming less blunt. The yellowish tinge of the fluid may have been due to the presence of broken-down blood-pigment. The fluid was quite clear and the cells were scanty.

The hæmic bruit alluded to was very loud, and persisted until death, though the superficial veins became collapsed as already mentioned. A similar bruit became audible over the liver towards the close.

The urine contained slight traces of albumin, and lately of cholesterin. Its most notable feature was the excess of uric acid, no doubt caused by the breaking down of nuclear matter.

The absence of abnormal muscular movements, and of fits of any kind, is rather remarkable. Possibly it may be accounted for by the fact that the intra-cranial pressure was increased generally and not locally.

The primary growth appeared to be the mass growing retro-peritoneally, and involving the liver and right kidney, the other growths being apparently secondary.

SLIGHT DEAFNESS IN CHILDREN.

By MACLEOD YEARSLEY, F.R.C.S.,

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A CONSIDERABLE amount of literature, of more or less value, deals with the recognition and treatment of the more severe forms of ear disease prevalent among children, and the general practitioner of to-day is, on the whole, better equipped with otological knowledge, and better able to give timely assistance to children suffering with acute aural trouble. There is, however, a large class of cases remaining in which slight forms of deafness are not recognised, or,

if recognised, are allowed to go untreated. The importance of these slight degrees of defective hearing in children cannot be over-estimated, and if good citizens, perfectly equipped to fight for their own and their country's good, are to be turned out, no effort should be spared to detect small defects of sense organs, and where possible to rectify them.

Even now, when there is no possibility of an excuse for it, parents are told that their children will "grow out" of their ear affections. This method of disposing of a case is, in the light of modern knowledge, criminal. Unfortunately, the old days, in which the "family doctor" was the confidant of the parent and his advice was not only sought but followed, have gone beyond recall. The doctor's place is taken in most families by the quack-medicine vendor or the pernicious popular "medical" paper. But for this numerous cases of hearing defect in children would be stopped at the outset, and the victim started upon its struggle for existence with one of its most important senses intact.

The prevalence of hearing defects in school children are shown by statistics gathered by careful observers in all countries. Von Ruckard, from an examination of 1055 school children, found 22 per cent. showing more or less deafness. Weill, of Stuttgart, found 30 per cent. in 5095; Gelle, of Paris, 22 per cent., and Bezold, of Munich, 21 per cent. in an examination of 1900. In England, Cheatle found 520 out of 1000, Murray 43 in 400, Permewan 62 in 203.

It is remarkable how closely these statistics agree. It must be remembered, however, that the percentage given by them is for all degrees of deafness other than the most severe, which usually find their way to special asylums and institutions. Hence the proportion of slight cases will be somewhat less.

Perfect hearing is of the highest importance in the intellectual and moral development of children, and the occurrence of moderate or even slight degrees of deafness interferes greatly with their career in after-life. Hence the necessity of rectifying defects is of vast importance. There are numerous individuals whose hearing defect is so slight, however, that they themselves are scarcely aware of it; it often happens also that their relatives and friends are equally ignorant of its existence. Such individuals are generally accounted more or less "stupid." They, especially as children, do not get a fair chance in the world, and it is they and those whose deafness, though still slight, is more marked that require looking to.

A child at school requires, to speak colloquially, to have all its

wits about it. It must be on as good a footing as its class-mates in its efforts to acquire knowledge. Its activity should be as normal as possible. Hampered by deficient hearing or deficient sight it is immediately at a natural and obvious disadvantage. In exceptional cases this disadvantage may be counterbalanced by especial intellectual brilliancy, but such rare instances cannot be taken into consideration in discussing the average child. The usual result is that the child inevitably falls below the standard set by its class-mates. In corroboration of this suggestion comes the evidence afforded by statistics, which prove that it is usually among the children at the tail of the class that deficient hearing is found, and, further, that the worse the hearing the lower the child stands in the class-list.

These are the cases that require recognition. These are the children that require succour. We are naturally proud of the fact that we are adequately catering for the mentally deficient, the deaf-mute, and the very deaf (the special schools under the London County Council are eloquent proofs of this), but we are not giving the attention that is urgently needed to the cases of very slight deafness that probably abound unrecognised in our normal schools. It too often happens that the inaptitude shown by these children is put down to anything rather than its true cause. It is called mental incapacity or, worse still, inattention. As a result they are unjustly punished or else allowed to become wastrels, so to continue throughout life. Even mothers, usually so keen in their observation of their own children, will overlook slight deafness and call it "inattention."

The normal child, properly fed and looked after, should have (allowance being made for family peculiarities) an active mind and be keenly alive to the acquisition of all knowledge which interests it. Inattention, or the want of proper interest in its surroundings, when habitually exhibited always means one of two things: mental incapacity or deafness. The two are easily distinguishable, and a careful parent or teacher should experience no difficulty in determining which condition is responsible for habitual inattention. If it be slight deafness the child suffers great disadvantage from it in class. It experiences difficulty in following the teacher's explanations sufficiently to comprehend them, and consequently soon becomes discouraged and loses interest. The prolonged fatigue and resulting strain thus produced upon the mind necessarily weaken the latter, and the child's ineptness becomes more and more accentuated as the lessons become more advanced and more complicated.

Much more attention is now paid to the scholar's sight than formerly, and, doubtless, many have been saved in consequence from eye-strain and kindred troubles in after-life. It is not my intention to deal here with the methods of examination by which it should be determined whether a pupil is or is not deaf, but rather to plead for as careful consideration for the ears as has been meted out to the eyes. It is only thus that we can insure our children reaping the full advantages of education, and save them from worse deafness in after-life. It may be that the time will come when every school will systematically and carefully inquire into the state of the eyes, ears, and teeth of its scholars—indeed, into their physical condition generally. Already a more enlightened *régime* has been entered upon by our Board of Education, and it is earnestly to be hoped that the example may be followed in the schools for the better classes of society. In all, however, the ear still remains much neglected, and if we want to turn out well-educated, well-equipped, and healthy citizens, it behoves us to consider the health of the sense organs as of primary importance. At present more attention is paid to the teaching of exploded myths as important truths than to the physical comfort and well-being of the child.

Editorial.

INFANTILE MORTALITY.

THE subject of infantile mortality is a national one, for on the production and well-being of the population, more especially during the earliest period of its existence, does England's national greatness depend. It is not sufficient to rely upon the fact that we are at the present time the most powerful and the most prosperous community among the nations of the earth, but we must look to uphold our greatness in the future by the protection of our infant population, and in so doing we shall not only confer a far-reaching benefit upon ourselves, but also set a worthy example to other nations and advance the cause of humanity in general. The problem has occupied the attention of politicians, sociologists, and philanthropists: good work has been done both in England and abroad, notably in France, to

improve the welfare of each rising generation, but much remains before an adequate solution can be attained, and we look to England, as the centre of civilisation, to make such advances towards perfection that their influence can be felt throughout the world.

The National Conference on Infantile Mortality, which was held in London in June last, has recently issued its Report. Such a conference perhaps does not attract as much attention on the part of the general public as it deserves, and it therefore behoves the medical profession, and more especially those members of it who are particularly concerned with the questions of health and the diseases of children, to lay to heart the problems discussed at the meeting, and to impress them upon the community at large, so that they may be definitely and adequately solved. The Right Hon. John Burns, M.P., who presided at the Conference, promised the support of the Local Government Board to the aims and objects in view, and in an able and sapient address referred to the fact that 100,000 lives were sacrificed annually owing to neglect, and drew attention to the deleterious effects of alcohol and the dangers of married women undertaking manual work both before and immediately after parturition. The question of infantile mortality presents itself from two different points of view, the one concerning its cause and the other its prevention. In dealing with the causation, Dr. Niven, in an admirable paper, pointed out that the infantile death-rate has remained stationary since 1850 in spite of the fact that the birth-rate during the last thirty years has steadily declined. Malnutrition and diseases of the digestive tract are the chief causes of death during the first year of life, next come developmental defects, and finally respiratory affections. It is very important, therefore, to secure the proper feeding of young children, about which there is a vast and lamentable amount of ignorance. Instruction in hygiene and in the bringing up of the young might well be taught to the older girls or pupil teachers in schools, or a system of home visitation by properly qualified teachers be instituted, as was suggested by Dr. J. S. Cameron. Dr. J. Knight, as the result of various analyses, laid stress on the unsuitability of proprietary foods in the feeding of infants, and proposed that all such preparations should be officially certified as non-injurious, and that each packet should contain its analysis, a plan which, if adopted,

would be of undoubted service to the medical practitioner at all events. Dr. J. R. Kaye thought that improper feeding was as rife in bygone times as now, but though considerable improvements in the housing and surroundings of the poorer part of the population have been made, the high death-rate still continues. Other causes, therefore, must be at work, and these are to be found in the relatively fewer conceptions which take place, owing to the prevalence of Malthusian practices; in the greater number of abortions, stillbirths, and deaths from premature births, due to the employment of abortifacients; and, lastly, in the fact that there are presumably more deaths among those who just escape being included in the last category. It seems advisable that the registration of stillbirths and perhaps also that of abortions should be carried out. England is the only civilised country where stillbirths are not registered, and if this were done much valuable information might be obtained as to the means of checking them.

The injurious effects of factory labour on women, both before and after confinement, were lucidly expounded by Dr. G. Reid, who had collected statistics from the north and south of Staffordshire. The former abounds in pottery factories, where much female labour is employed, while the latter is a mining district and affords little employment for women. The occurrences of abnormalities and stillbirths in the north are respectively 2·5 and 2·9 times as frequent as in the south, and these figures form eloquent testimony as to the necessity for the protection of pregnant women. There is a restriction, imposed by law, against mothers returning to work till one month after confinement, which may be beneficial to the mother, but is scarcely advantageous to the infant, who is left to the tender mercies of some one else during the critical period of its existence. To prevent women working before parturition the speaker acknowledged was a difficult matter, but he proposed that if such were allowed every woman should be certified as fit to follow her occupation, and that the period before returning to work after confinement should be extended to three months, and then only on condition that satisfactory evidence was produced to the local authority that proper provision had been made for the care of the child. The President himself in his opening address went so far as to advocate

compulsory abstention for three months before and six months after confinement, a policy which, if practicable, would be more or less ideal.

The abuse of alcohol and its influence upon the social problem in question was the theme touched upon by Professor Sims Woodhead and Dr. J. W. Ballantyne. Excessive indulgence in alcohol produces an impoverished stock and weakly offspring, and the consequent inability to suckle the progeny is transmitted to succeeding generations. It predisposes to overlaying, and leads to the social vices of immorality and syphilis, as well as to the physical defects of sterility and the production of abortions and premature births. The evil influence of alcohol falls both on ante-natal and post-natal life; though it acts not so much by the transmission of the alcohol itself to the foetus as by its effects on the kidneys and placenta of the mother. Dr. Ballantyne advocated more attention to preventive ante-natal medicine, and the establishment of hospitals or wards for pathological pregnancies, which do not as a rule receive the consideration they deserve.

Turning to some of the more general methods of preventing excessive infantile mortality, we must endorse Dr. G. F. McCleary's plea for the institution of infants' milk depôts, which should be not merely municipal counters, over which bottled or more or less modified milk is handed, but should form the nuclei of organisations for the feeding of infants under municipal direction and medical supervision, as is the case in France. The advantages of breast-feeding should be insisted upon, and only those infants for whom satisfactory feeding *per vias naturales* is impossible should be supplied with milk, though nursing mothers should be encouraged to bring their babies to be weighed and supervised, and to receive instruction as to the necessary diet and mode of life. The preliminary instruction thus inaugurated might be further advanced by a system of organised home-visiting. The necessity for the inspection of infants is as important as that of school children, and advice on child-rearing should be given while the child is healthy rather than when it is ill. Again, it should be the object of these depôts to supply milk in its purest and best form. That strict veterinary supervision and aseptic methods can be employed is shown by the

municipal dépôt at Rochester, U.S.A.; in this way fresh milk, modified to suit the infants' requirements, can be supplied without the necessity for sterilisation, etc. Another valuable suggestion was that the milk should be sold at market prices, the expenses of the dépôts falling on the rates, and that people too poor to purchase the milk themselves should be supplied with Poor Law tickets.

The necessity for the greater supervision of persons and places where infants are received for day-nursing was commented upon by Dr. S. G. H. Moore, and in this connection Dr. Greenwood drew attention to several weak points in the Infant Life Protection Act (1897), which states that any person who undertakes for hire to nurse more than one infant for a period exceeding forty-eight hours shall give notice to the local authority, but the necessity for supervising the welfare of a single infant is as great as in the case of two or more. The Act also says that, if a sum not exceeding twenty pounds be given for the bringing up of a child, notice shall be given or the sum forfeited. This provision should apply also to cases where over the statutory amount is paid, for in the event of twenty pounds and sixpence being the amount determined on all supervision of the infant ceases.

The Dairies, Cowsheds, and Milk Shops Order is defective and open to criticism. Until recently cattle-plague, pleuro-pneumonia, and foot-and-mouth disease represented the only diseases of cattle which debarred milk from sale as human food. Tuberculosis of the udder has now been added, but Dr. A. K. Chalmers suggests, and very rightly so, that every general disease of the animal accompanied by fever, all acute affections of the gastro-intestinal tract, and inflammatory affections of the udder and teats should be included. It is very necessary that a high standard of purity in all milk sold should be insisted upon by the local authorities.

Another much needed reform is required in connection with the registration of births in England, as was pointed out by Alderman B. Broadbent. At present births need not be registered till six weeks after their occurrence, but a large proportion of the deaths which occur during the first year of life take place during the unnecessarily long period before registration need be made. It would benefit the infant community to no small extent if it were

made compulsory that every birth should be registered early, and that the Public Health Department should take cognisance of the fact and the necessary steps to insure the child's health at once instead of waiting till it has some infectious disease. The registration of deaths, on the other hand, is much more jealously guarded, and it is somewhat of an anomaly with reference to the progress of the nation that in the eye of the law deaths should be held of more account than births.

The various papers read at the Conference embody a great amount of useful information, and the resolutions passed in connection with them contain many valuable suggestions, obviously the outcome of much thought and care. With the suggestions as a whole we cannot fail to be fully in accord, and if one and all were carried out a great saving of infant life would undoubtedly be the result. Two of the proposals, however, seem to us to indicate specially needed reforms, viz. the establishment of infants' milk depôts with adequate medical supervision of the infants supplied, and the curtailment of married women's labour when approaching and after confinement. Municipal and social reforms in this country are notoriously slow and difficult matters to attain, but the benefits to the community would be inestimable if only some of the reforms which were suggested could be carried out. In any case, it would be no little satisfaction to the speaker and the organisers of the Conference to feel that they have reaped some harvest of their labours. "The mills of God grind slowly," and we trust that in this instance they will "grind exceeding small."

Abstracts from Current Literature.

Medicine.

Pneumococcic peritonitis (*'Gaz. med. Ital.,'* June, 1906, No. 24, p. 235, and *'Deut. med. Woch.,'* No. 23, 1906).—**Robbers** distinguishes two forms, the encysted or abdominal empyema, and the diffuse. Both are purulent, the former being the result of the second form and the more frequent. This disease is three or four times more frequent in children than in adults, and in infancy affects almost exclusively females. The onset in children begins suddenly, with fever, vomiting, and headache, then pains

in the abdomen, very often diarrhœa, face slightly cyanotic, eyes sunken, rapid pulse, and distended belly. Two or three days later the belly becomes tympanitic, while the fever and diarrhœa continue. These acute phenomena last four to six days, then diminish gradually, the vomiting becoming less frequent, and the pains occurring only just before or after defæcation. The diarrhœa, however, does not cease, and in those cases which begin with constipation diarrhœa ensues later and continues. After eight to fifteen days the abdomen becomes more and more enlarged, and a collection of fluid with fluctuation makes its appearance which may be circumscribed to the umbilical region or occupy the whole abdominal cavity. Both forms result in the gradual protuberance and definite perforation of the umbilicus. During this stage the temperature rises at night, and great weakness ensues. **Dieulafoy** considers that the aggregate of the initial symptoms of pneumococcic peritonitis—*i. e.* abdominal pain, vomiting, diarrhœa, and fever—are not found in any other abdomino-peritoneal affection. But even if this is not strictly true, the subsequent course is eminently characteristic; for while in cases of peritonitis from other causes such a course is always desperate, in pneumococcic peritonitis the violent symptoms disappear, and the predominant condition is the collection of fluid with tendency to perforation at the umbilicus. Anatomically the whole abdominal cavity, or a circumscribed portion of it, is filled with pus which is creamy, greenish-yellow, inodorous, and containing abundant fibrinous coagula, similar to that in pneumococcic empyema of the thorax. When the collection of pus is already present and there is an umbilical fistula, the clinical picture is so peculiar that no error in diagnosis can occur, but in the early stages the disease may be mistaken for appendicitis, typhoid fever, or tubercular peritonitis. The pain is not localised, however, as in appendicitis; diarrhœa predominates instead of constipation, and muscular rigidity of the abdominal wall is wanting in pneumococcic peritonitis. In typhoid we rarely find an acute onset, and the temperature has morning remissions. Tubercular peritonitis may be excluded with certainty if there has been an acute onset; if, on the other hand, the onset is subacute, and if pulmonary or pleuritic signs have existed, then the differential diagnosis may be difficult, if not impossible. French writers consider that pneumococcic peritonitis is almost always post-pneumonic, but recently published cases seem to show that in the greater number of cases a previous pneumonia could be excluded. The exact starting-point cannot be accurately defined, and though direct migration from the pleural cavity to the abdominal has been demonstrated by Burckhardt, it must be noted that the lymph-current is from the abdominal cavity to the thoracic. Of fifty-eight cases of pneumonia peritonitis in children, fifty-one were in girls, from which Brunn concludes that the female genitals represent the principal mode of entry of the disease, but the acute onset with gastro-enteric symptoms rather suggests the gastro-intestinal canal: and as the presence of pneumococci in the mouth is well established, the hypothesis of their transference to the stomach and intestines is at least plausible. In children pneumococcic peritonitis has a marked tendency to spontaneous cure; when, however, the patient has succeeded in reaching the threshold of umbilical perforation operative interference, such as puncture and drainage, should not be delayed.

VINCENT DICKINSON.

Tics and their educational treatment (*'Arch. of Pediat.'* 1906, vol. XXIII, p. 426).—**C. Herrman** points out that many obstinate tics of adult life start in childhood, and that a tic in early life may be the first

outward manifestation of later psychical disturbances. A tic is a motor manifestation of a peculiar mental state and should be regarded as a danger signal of possible trouble to come. It has been defined by Gowers as "a spasmodic movement, half voluntary in aspect, which a patient is unable to control," and by Guinon as "an habitual and conscious convulsive movement, resulting in the contraction of one or more muscles of the body, reproducing most frequently in an abrupt manner some reflex or automatic action of common life." Meige and Feindel describe it as a psychomotor affection composed of two elements—an abnormal mental state, a lack of control of the will, and a motor manifestation due to some stimulus from without or from the brain. The motor manifestation is either clonic or tonic. It is a co-ordinated act, expressing feeling or a gesture of defence, repeated in response to an irresistible desire and followed by a feeling of satisfaction. Suppression, by an effort of will, is accompanied by a feeling of discomfort. Tics are increased by mental and physical fatigue, decreased by distraction of the attention, and are absent in sleep. The etiological factors are an inherited predisposition and the environment, including the method of training. Both sexes are about equally affected. It is by no means uncommon, but is rare before the fourth year. Its maximum frequency is in the seventh and eighth years. Traumatism and fright are exciting causes, so too debilitating illness. It may be induced by mimicry or by local sources of irritation. Common forms are blepharospasm, movements of the head, face, and shoulders, sucking or licking the lips, deep inspirations, nodding, torticollis, stammering. Often it is mistaken for chorea, and occasionally a patient may have both affections at different times. In treating these cases any local abnormalities in the affected region should receive attention—*e.g.* granular lids, conjunctivitis, errors of refraction, and adenoids. These may be contributory though the mental condition is the essential factor. Drugs are mostly useless, unnecessary, or contra-indicated. Electricity, massage, hydrotherapy, and tonics may act psychically or by improving the general health. Careful dieting, mild exercise, with avoidance of fatigue, and an open-air life are most important, so, too, a mid-day rest and a long night. In very mild cases the discipline, regularity, punctuality, and attention of school life are advantageous. In more severe ones complete change of surroundings and cessation of mental effort are indispensable. Segregation from other children is advisable to prevent mimicry. The essential part of the treatment is *educational*. This consists of: (1) immobilisation primarily of the parts affected; (2) active exercises primarily of the parts affected. The first has for its object the strengthening of the control. Sit the patient before a mirror and stand behind, directing him to remain perfectly quiet, like a statue, for a stated time. This proves to the patient that he can control the movement, if he wills to do so, and gives him confidence. Begin with thirty seconds and gradually increase the time to two minutes. In giving active exercises of the parts affected the patient is instructed to perform simple movements slowly and regularly, without jerking, at command. Each movement should be repeated six to twelve times. Deep breathing, while standing against a wall with the shoulders thrown back and the arms at the side, should be practised. Inhibition exercises are also useful—*e.g.* bringing a sharp instrument quickly and repeatedly towards the eyes, tickling, pinching, and pricking, the patient restraining the desire to move or touch the part. The exercises should be repeated three times a day, regularly and punctually. At first one sitting should be supervised by the physician. The duration should be short and gradually increased. The patient should be

interested and exercise varied from time to time and new ones added. Encourage him by drawing attention to the progress and improvement. Do not threaten or punish. Between the exercises a short rest, during which patient is commanded to remain perfectly quiet, is taken. The period of fixation should be followed by that of active movements to enable the stored-up, repressed energy to find an outlet in legitimate channels, in the form of regular, voluntary movements executed at command. The treatment should be kept up in some form long after the motor manifestations have ceased. It is unsatisfactory in cases associated with mental deficiency, for the patient's co-operation and attention cannot be obtained. It will fail if the co-operation of the parents cannot be secured. Much pressure on the part of patient, parent, and physician is essential.

EDMUND CAUTLEY.

Typhoid Fever (*'Arch. of Pediat.,'* 1906, vol. xxiii, p. 401).—**R. Hands and J. Claxton Gittings** analyse 145 cases of typhoid fever in children seen in the Children's Hospital of Philadelphia. Percentage statistics were: *Sex*: males, 57; females, 43. Numbers in each year of life were 2, 8, 12, 13, 22, 19, 13, 14, 15, 9, 11, 7 in ascending age. *Prodromal symptoms* in 143 cases given in percentages were: fever, 100; anorexia, 78; headache, 62; diarrhoea, 55; abdominal pain, 53; drowsiness, 46; vomiting, 42; constipation, 35; epistaxis, 25; delirium, 16; chilliness, 10. Sore throat, pain in chest, vertigo, and nausea occurred each in two cases, and hæmatemesis and convulsions in one case each. In 7.5 per cent. the maximum temperature was under 103° F, and in over three quarters of the cases it was above 104° F. Average duration of fever in non-fatal cases was twenty-five days, the minimum being eight days. Widal's reaction was positive in 95 per cent., being obtained on the first to the fortieth day; coated tongue in 80 per cent., spots in 70 per cent. of white children, palpable spleen in 69 per cent., abdominal pain 37 per cent., distension 20 per cent., constipation throughout in 22 per cent., and present in 53 per cent. after a diarrhoea of more or less severity. Delirium in 26 cases, drowsiness 13, irritability 11, restlessness 2, convulsions 2, stupor and delirium 1, delirium and external squint 1, stupor and retraction of head 1, rigidity of neck and limbs 1, retraction of head 1, apathy 1. *Lungs*: Bronchitis in 38, broncho-pneumonia 7, croupous pneumonia 7, pleuro-pneumonia 1. *Blood counts* in 121 cases (103 uncomplicated): under 5000 leucocytes in 9, between 5000 and 10,000 in 71, 10,000 to 16,000 in 31 uncomplicated cases. In 9 complicated cases there were over 10,000, and in 9 between 5000 and 10,000. *Complications* in 31 per cent., viz. diphtheria 13 cases, pneumonia 13, otitis 13, furunculosis 12, hæmorrhage 8, measles 2, and 1 each of bed-sore, gangrene of skin, perforation, pleuro-pneumonia, scarlet fever, nephritis and convulsions, ischio-rectal abscess, convulsions. Relapses occurred in 7 cases, one of which died. The mortality was 8 per cent. Nine of the cases of diphtheria were removed from the hospital, 2 died in hospital, and 2 recovered. Two of the fatal cases were uncomplicated. Lung troubles were the chief complications in fatal cases. *Treatment* consisted mainly of rest in bed, liquid diet, and hydrotherapy. Tub baths of five minutes' duration at 85° F. were given to 117 patients. A temperature of 103° F. was the usual guiding point. In some resort was had to sponging, ice rub, or cold pack. Ten stood baths badly. Whiskey was used as a stimulant in doses of 5 to 30 m, but was not required in 52 cases. Of the remaining 93, 44 were also given strychnine. For diarrhoea, bismuth salicylate, bismuth subnitrate, beta-naphthol bismuth, opium, and silver were used.

EDMUND CAUTLEY.

Fæcal impaction in typhoid fever (*Arch. of Pediat.*, vol. XXIII, p. 441).—**D. J. Milton Miller** reports two cases of typhoid fever in which fæcal impaction gave rise to symptoms of great abdominal lesion. Milk diet, prolonged fever, and consequent muscular weakness are liable to cause intestinal atony and this complication. Though rarely referred to in text-books on pediatrics, the majority of these cases occur in children. The first case, a girl aged 12 years, had a mild attack of the fever, during which she was fed on milk and lime-water. Constipation was constant, and required daily enemata. On the twenty-ninth day, after she had been sitting up in bed for four days, she was suddenly seized with severe abdominal pains, most marked over the cæcum. The abdomen was everywhere painful on pressure and slightly distended. The temperature rose to 102° F., and the child vomited; pulse rose from 72 to 140, respirations from 16 to 28. An almost continuous diarrhœa supervened and on examination the rectum was found to be full of hard, scybalous, fæcal masses. Leucocytosis was marked. Calomel, citrate of magnesium, and oil enemata were freely given, but the bowel was not completely emptied until the next day. In the second case, a boy aged 10 years, the fever was more severe. Constipation was present throughout. The diet consisted of milk and lime-water. The temperature was normal on the twenty-eighth day, and on the thirty-sixth the patient sat up. Four days later he complained of abdominal pains, which rapidly became severe, with universal tenderness, most marked over the cæcum. There was no rigidity and only slight distension. No mass could be discovered. Vomiting was frequent and severe. Temperature, 102.5° F.; pulse, 140; respirations, 32. Later, the expression became anxious, the pulse small and weak, and the extremities cold. Leucocytosis, 28,000. Liquid diarrhœa rapidly ensued, and the rectum was found almost blocked with large, dry, fæcal masses. The same treatment was adopted and manual extraction, the bowel being emptied in twenty-four hours, and the symptoms then subsided. After full evacuation the leucocytes fell to 8000. The diarrhœa in these cases is due to the local irritation of the mucous membrane. The writer suggests that enemata are insufficient for the constipation of typhoid as they simply unload the lower bowel, that laxatives by the mouth should be given, that the diet should not be limited to milk, that leucocytosis in children is of little significance in children with real or apparent serious abdominal trouble, and that the liquid diarrhœa is the most important indication of fæcal impaction.

EDMUND CAUTLEY.

Pneumonia (*Pediatrics*, 1906, p. 365).—**E. D. Fenner** divides the pneumonias of childhood into broncho-, lobar, and interstitial varieties. True lobar pneumonia is very frequent in the young. Broncho-pneumonia is infrequent in the adult. In examining the chest, the region high up in the axilla must never be overlooked, and in any obscure illness pneumonia should be thought of. The onset may be quite insidious if it occurs in the course of some exhausting disease. The mortality is less in lobar than in broncho-pneumonia. True pneumonia sometimes aborts, so undue credit must not be ascribed to the treatment adopted. The patient should be treated rather than the disease. The value of fresh air and frequent changes of position is great. Diet and the alimentary tract must be carefully attended to; flatulent distension is a serious impediment to breathing. If antipyretic measures are necessary, rely on hydrotherapy and not on coal-tar products. Ice-bags to the head are too depressant in infancy. Local applications, such as poultices and antiphlogistin, are probably

useless or actively injurious. The writer relies on digitalis, strychnia, atropine, caffeine, and alcohol, if drugs are needed, and warns against nauseating cough-mixtures and drugs liable to upset the digestion.

EDMUND CAUTLEY.

A case of acute lymphatic leukæmia (*'Lancet,' June 23, 1906*).—**R. V. Solly** reports a case of this disease which was under the care of Dr. W. Gordon. The patient was a female, aged 13 years, an Italian by nationality. She complained of great pain in the splenic region and in the calves of the legs. Menstruation had been excessive. She was very anæmic. The gums were swollen and bled slightly, but there was no ulceration present. The spleen was enlarged and acutely tender. There were enlarged and tender glands on both sides of the neck, in both axillæ, and in the groins. The temperature was 102° F. The microscope showed a very remarkable increase of white corpuscles which were almost wholly lymphocytes. The tongue was dry, coated with brownish fur, and the gums were very pale. The spleen projected about 33 inches below the ribs. The liver dulness measured 5½ inches vertically, and its edge was tender. The heart's apex was slightly displaced to the left. There was no reduplicated first sound. No optic neuritis was present. The treatment employed was increasing doses of arsenic and the application of the X rays daily for ten minutes over the spleen. The day after admission slight epistaxis occurred and menstruation still continued. In two days afterwards the spleen had contracted one inch. There was now slight albuminuria present. The patient, however, was free from pain and appeared generally better. The tonsils, however, were much enlarged. A day or two later she became much excited, continually whining. From this time she gradually became worse and eventually died comatose, the whole duration of illness being only a fortnight. On examination of the thymus and tonsils after death it was found that these organs consisted of a network packed with lymphocytes. The lymphocytes were mostly rather small and stained deeply, and consisted apparently entirely of nucleus with no demonstrable protoplasm.

JAMES BURNET (Edinburgh).

A case of congenital pyloric hypertrophy (*'Lancet,' June 23, 1906*).—**J. W. Rob** describes a case of some interest. The patient was a male infant of about a month old, and was seen in consultation. The symptoms were at first forcible vomiting of undigested food and wasting. The epigastrium was prominent and the temperature subnormal. There was no visible peristalsis. Constipation was troublesome, but no definite pyloric tumour could be made out. The line of treatment adopted was washing out the stomach every day and feeding on peptonised milk (one part) and water (two parts) in feeds of half an ounce every hour. Constipation was overcome by small doses of calomel. Wasting, however, still continued, and there was a considerable amount of gastrectasis present. At times a pyloric tumour could be made out, and at one period during the treatment gastric peristalsis became visible. The vomiting then gradually ceased and the stomach was now washed out on alternate days, one eighth of a minim of tincture of opium being given twenty minutes before each feed. This caused some contraction of the pupils. The baby was always more comfortable after having had his stomach washed out. He took a feed afterwards and went to sleep. After an interval the weight began steadily to increase. At first raw meat juice was tried, but had to be discontinued as it only produced

vomiting, but later on it was well borne. The baby is now, at seven months, fat and vigorous, and is quite healthy and happy. He has cut two teeth. A chart illustrating the feeding and other points in the treatment of this case is given in the text, to which our readers are referred for fuller information.

JAMES BURNET (Edinburgh).

Diagnosis of pneumonia in children (*'Medical Press,' May 2, 1906*).—**Variot** draws attention to the frequency with which lobar pneumonia runs an abnormal course in childhood. The sudden onset with a rigor is generally absent; pain in the side is doubtful, for dyspnoea is often not marked, though it must be remembered that in older children pain is frequently referred to the abdomen or right iliac fossa, causing a resemblance to appendicitis, a resemblance which may be heightened by the association of reflex vomiting. Cough is often insignificant till the later stages of the disease, and the sputum is not expectorated. The latter, however, may be obtained for the purpose of bacteriological examination by touching the walls of the pharynx with a tongue depressor, which causes the patient to cough. Sputum appears at the base of the throat and can be collected on a swab. The temperature frequently oscillates to the extent of 4° or 5° F., or, if it has been more or less constant, it may show considerable remissions after the crisis. The disease may take a cerebral form, either eclamptic or meningitic in character, the diagnosis being rendered thereby all the more obscure. In the absence of definite signs the diagnosis at times can only be made by the presence of impaired resonance at one apex—the seat of election in children, or, if the disease is central, by an elevation of temperature, which ends in a crisis. The affected area may sometimes yield a tympanitic note due to compensatory emphysema, and the breath-sounds on the healthy side appear feeble in comparison, so that a mistake may be made as to which side the lesion is. In broncho-pneumonia dyspnoea, rapid respiration, and cyanosis are more marked. The physical signs are bilateral, fine, moist crepitations, with or without patches of bronchial breathing; impairment of percussion resonance is wanting. The X rays may enable a lobar consolidation to be identified when physical signs are absent, but they are no help in cases of broncho-pneumonia.

T. R. WHIPHAM.

The so-called "fourth" (Filatow-Duke's) disease (*'Deutsch. Arch. f. klin. Med.,' 1906, No. 1*).—**Unruh** upholds the existence of a fourth disease, closely resembling scarlet fever. The rash consists of minute small dots, which do not stand out as palpably as those of measles or rubella; they may be single, in groups, or connected by an erythema, so that, especially on the face, they may resemble measles, though their punctate nature will be evident on close inspection. Compared with scarlet fever, the rash is darker in colour; it tends to spread all over the trunk and extremities, but leaves larger gaps on the face and neck. After twenty-four to thirty-six hours the eruption fades, and is followed by a fine desquamation, lasting one to two weeks. Fever lasts a few days, and the mucous membranes show a mild catarrh. No sequelæ have been observed.

T. R. WHIPHAM.

Anorexia nervosa in an infant (*'Interstate Med. Journ.,' May, 1906*).—**A. Friedlander** reports a case of this neurosis, which is rare in childhood. The patient was a male, aged 1 year, the first and only child of a neurotic but otherwise healthy mother. The father contracted syphilis many years before marriage, but the child showed no sign of hereditary taint and except for an undescended testis no abnormality. It was breast-fed for

a year and had had no gastro-intestinal troubles. The development was normal, but mentally the child was somewhat precocious. At the ninth month attempts were made to add artificial foods to the dietary, but the child refused them all. At one year weaning was commenced, nursing being allowed only once a day. As the child still refused all other foods it was taken into hospital at the end of a week, and for four days and nights nothing was given by the mouth, saline enemata only being administered three times a day. At the end of this period foods of various kinds and temperatures were offered, but nothing except water would be taken. The child had lost 3 lb. in weight and the acetoneuria of starvation was present; in himself the patient appeared perfectly contented, played, and slept well. False feeding by gavage was instituted, but all attempts to induce the child to take food failed except on one occasion, when he took a small piece of fried bacon. At the end of a week the child was taken home, and at the urgent request of the mother permission to resume nursing in addition to gavage was given, but the child absolutely refused the breast. At this time bromine was offered and promptly taken from a spoon, though beef-juice was refused. A week later the child developed a fondness for farina, but would only take it on a cracker, and not from a spoon, then crackers themselves, cereals, and milk were taken. Thereafter progress and recovery were rapid. The author attributes the condition to a neurosis inherited from the mother.

T. R. WHIPHAM.

The origin of tuberculosis in infancy (*'Arch. f. Kinderheilk.,'* vol. XLIII, p. 99).—**Schlossman**, who formerly adhered to the inhalation theory, now maintains that in early life the origin of tuberculosis is enterogenous rather than aerogenous. The bacillus may gain entry anywhere from the oral to the anal orifice, and especially by way of the naso-pharynx and tonsils. Cow's milk is not the source of infection that it has been made out, and the view the author maintains was held by Behring himself, who only insisted that the disease was alimentary in origin. Though tuberculosis arises by way of the alimentary canal, primary intestinal tuberculosis is rare in infancy. The organisms penetrate the healthy mucous membrane, and even may pass through the mesenteric glands without giving rise to a local lesion; then by way of the thoracic duct and heart they reach the lungs, and further through the pulmonary lymphatics arrive at the bronchial glands, which are especially liable to infection. As against the inhalation theory Schlossman states that he has been unable, even microscopically, to find primary lesion of the trachea or larger bronchi, or to discover bacillus in the alveolar spaces of the lungs. The frequency with which the bronchial glands are attacked is confirmed by **Hamburger** and **Sluka** (*'Jahrb. f. Kinderheilk.,'* vol. LXII, Heft. 4), who found that in 160 necropsies on tuberculous children they were affected in 157 instances, while the mesenteric glands showed lesions in only 57, but the authors maintain that these findings do not favour the view of a primary intestinal infection. In support of Schlossman's view that cow's milk is not necessarily the source of infection, it may be mentioned that **Theobald Smith** (*'Boston Med. and Surg. Journ.,'* January 18, 1906) points out that in children under ten the bovine bacillus is almost exclusively found in intestinal tuberculosis, yet in Japan, where milk is but little used in the feeding of infants, tuberculosis, including the intestinal form, is as common as in other countries. Pulmonary tuberculosis in children and other forms of the disease in adults he found to be almost wholly human in origin.

T. R. WHIPHAM.

Gaseous phlegmon in the course of varicella (*'Arch. de Méd. des Enf.,'* November, 1905; *'Gazette des Hôpitaux.,'* January 6, 1906, p. 20).—**J. Hallé** reports a case of a little girl who in the course of an attack of varicella developed on the labium majus a gaseous phlegmon. Recovery ensued. The accident was due to inoculation with anaerobic micro-organisms.

ERNEST JONES.

Pathology.

Leucocytosis in whooping-cough (*'Journ. Amer. Med. Assoc.,'* May, 1906).—**Churchill** lays stress on the early diagnosis of whooping-cough by means of a leucocyte count. From an examination of one hundred cases he concludes that a general leucocytosis is present in almost all cases, that a lymphocytosis occurs in about 85 per cent. at some time during the course of the disease, that the lymphocytosis is especially present in the early or catarrhal stage, when it is found in over 90 per cent. of the cases. Its presence therefore in a child with a hard, persistent cough is a useful aid in diagnosis. The age of the child, of course, must be taken into consideration in estimating the leucocyte count.

T. R. WHIPHAM.

Porencephalus (*'Arch. of Pediat.,'* 1906, vol. XXIII, p. 272).—**G. N. Acker** describes a case in a coloured girl, aged 11 years. Clinical description—never able to stand. Thighs and legs flexed and motionless. Upper extremities deformed, but could be moved. Exophthalmos, nystagmus, and blindness. Hearing poor. Speech slight. Understood and answered questions. Sense of smell and taste present. Never chewed her food. Was admitted into hospital for a gangrenous condition of the urethra, extending almost to the bladder, from the effects of which she died. Anatomically the brain showed nearly symmetrical porencephalus cysts, involving the parietal lobes and parts of the temporal and occipital, and extending to the lateral ventricles. Much evidence of tuberculosis in mediastinal and mesenteric glands. Tuberculous ulcers in small intestine, perforation and peritonitis. Some tubercles and old adhesions in lungs.

EDMUND CAUTLEY.

Researches on the blood of premature children (*'Rev. Mens. des. Mal. de l'Enf.,'* April and May, 1906, pp. 145 and 206).—**De Vicariis** has made extensive investigations on the relations existing between the composition of the blood and particularly the hæmoleucocytic formula and the temperature, variations of body-weight, œdema, icterus, and infections of premature children. The subjects of the investigation were divided into two categories: (1) children, quite healthy, who have reached a certain weight (children with œdema were included in this class); (2) children, healthy to start with, afterwards showing signs of hereditary syphilis or of infection of the umbilicus or the eyes, etc. The general conclusions were: (1) The blood of the premature does not differ greatly from that of the normal new-born in the first days of life, but still presents certain special characters; (2) the red cells are very nearly normal, perhaps slightly less numerous, and diminish readily under the influence of infections, jaundice, and œdema. Their form shows their recent origin, and macro- and microcytes are very numerous. (3) The nucleated red cells are characteristic of the blood of the premature, and are the more numerous the further the

infant is from term (in normal children they are found only in the first two days after birth). A very large quantity is incompatible with the life of the child. These elements are found as late as ten days or more after birth; they easily reappear during an infection, and are the more numerous the more severe the infection. These elements bear no constant relation to the temperature, but if it is low they disappear less rapidly and reappear whenever the temperature descends below normal; this fact is of unfavourable prognosis. (4) The leucocytes are less numerous than in the normal state, are strongly influenced by diseases, and sensibly diminish in the course of morbid processes and in serious cases a true leucopenia may exist. (5) The hæmoleucocytic formula is characterised by a predominance of mononuclears and abnormal elements, such as myelocytes and mastzellen, which are often found even in absolutely healthy premature children, elements of little activity which explain the small resistance of these children to morbid influences. The formula shows a very feeble polynuclear reaction (always of grave significance); this may be replaced by a reaction of transitional forms and abnormal elements such as red cells with bi- or trilobed nucleus, myelocytes, and mastzellen, as if the hæmatopoietic organs, as yet imperfect, could only put into the circulation very immature elements. (6) The polynuclear eosinophiles, less in number in the blood of the premature, disappear when an infection occurs. They are always very numerous in syphilis.

VINCENT DICKINSON.

On the cord changes appearing in the course of Pott's disease ('*Arch. de Neurol.*' December, 1905, vol. xx, p. 417).—**Italo Ross** deals exhaustively with this subject in a memoir of forty-seven pages. The hypotheses and researches bearing on the subject are first fully considered, and then a detailed description of the examination of four cases is given. The older views as to the pathology of the cord changes are to the effect that the pachymeningitis was sufficient to account for their appearance through mechanical action by means of the vessels. It is now known that no correlation whatever can be established between the extent of this pachymeningitis and the intensity of the myelitis, and, indeed, the latter may be found when practically no meningeal changes exist. The factor that at the present time is thought to be of predominant importance is the toxic one. The toxins, secreted by the tuberculous tissue in the immediate neighbourhood, probably act rather by inducing a collateral inflammatory œdema than by any direct influence on the nervous elements.

ERNEST JONES.

Meningeal complications of typhoid fever in children ('*Thèse de Bordeaux*,' 1905, No. 27; '*Arch. de Neurol.*,' January, 1906, vol. xxi, p. 74).—**J. Giraudet** has collected fifty-seven instances from the literature and added four hitherto unpublished ones of his own. These accidents are, therefore, pretty rare. The symptoms most often resemble those of acute meningitis, sometimes those of tubercular meningitis, and occasionally those of eclamptic convulsions. The last two give rise to the most difficulty in diagnosis: the serum reaction, diazo reaction, fibrino reaction, and, above all, lumbar puncture are the chief aids to rely on. At the autopsies one finds either a purulent meningitis (general or local) or a simple congestion of the meninges. In other cases no apparent lesion was to be seen. In the pus exists Eberth's bacillus, either pure or in association with the staphylococcus. Eberth's bacillus may also be recovered from the cerebro-spinal liquid obtained by

lumbar puncture. Occasionally the meningitis may be due to other causes, such as Koch's bacillus or even typho-toxins. The prognosis is grave, over 50 per cent. dying when these meningeal complications ensue: the pseudo-tubercular form is the most benign. As to treatment, lumbar puncture and hydrotherapy are the methods of greatest service. ERNEST JONES.

Syphilitic septicæmia in the new-born (*Soc. Méd. des Hôp., December 29, 1905; 'Gazette des Hôpitaux,' January 4, 1906, p. 8*).—**Ménétrier** and **Ruben Duval** describe a case of syphilis in which Schaudinn's spirochæte was found in the blood of all the visceral organs. Clinically only eruptive lesions were present and no inflammatory reaction. The congestion was most advanced in the liver. The authors point out that this variety of septicæmia was unrecognisable before Schaudinn's discovery.

ERNEST JONES.

Tubercular meningitis of early infancy (*Soc. Méd. des Hôp., January 26, 1906; 'Gazette des Hôpitaux,' February 1, 1906, p. 151*).—

A. Lesage and **P. Abrami** have, while practising lumbar puncture systematically in all cases presenting any meningeal symptoms, been struck with the frequency of tuberculous meningitis in children below three. They have met twenty-nine such cases in twenty-two months. Each time the diagnosis was established by inoculation into guinea-pigs. Only four out of the twenty-nine cases showed the classical picture of meningitis with convulsions, etc. In the twenty-five other cases there was no motor phenomenon, no paralysis, spasm, neck-retraction, or Kernig's sign, and no changes in the fontanelle, etc. Many of the children had been admitted with the diagnosis of gastro-enteritis. However, in all these cases there was present a syndrome made up of four symptoms—(1) progressive somnolence, (2) ocular catalepsy; the child lies with a fixed stare with eyes half open or even wide open. This sign is seen early and is due to infrequency of winking, amblyopia, and diminution of conjunctival reflex. (3) Instability of the pulse, the rate being increasingly faster; early dissociation of pulse and temperature. (4) Emaciation, early, continuous, and progressive, differing thus from the sudden and extensive wasting seen in the severe diarrhœa of infants. The cerebro-spinal liquid showed the customary characters of tuberculous meningitis. Direct search for Koch's bacillus was positive seven times, but in each of the cases $\frac{1}{4}$ or $\frac{1}{2}$ cm. of the liquid infected a guinea-pig with tuberculosis. Autopsies revealed the great infrequency of granular meningitis.

ERNEST JONES.

Therapeutics.

Vegetable broth for infants suffering from gastro-enteritis (*'Gaz. Hebd. des Sci. Med.,' June 2, 1906*).—**Bailey** gives the following recipe: Carrots, 65 grm.; potatoes, 5 grm.; turnips, 25 grm.; dry peas or dry haricot beans, 25 grm., for each litre of water. This should be well cooked and strained, and 5 grm. of salt per litre added. J. PORTER PARKINSON.

The treatment of rhino-pharyngitis in children (*'La Pédiatrie,' May, 1906, p. 394*).—**Le Marc' Hadour** recommends the insertion into the nostrils three or four times a day of a plug of absorbent wool soaked in

vaseline gr. 20, Pulv. acidi borici gr. 1, antipyrin gr. $\frac{1}{2}$, which is carried into the nasal fossæ by inspiration. When the nasal catarrh is more marked and there is a sanguineous discharge Durante recommends the introduction on a camel's-hair brush of calomel vaseline (25 centigr. to 10 gr.) after cleaning the parts with boric solution. Comby advises instilling into the nose twice a day menthol oil 1 per cent., or resorcin oil 1 in 20. If instillation is difficult, it is better to inflate a powder of aristol gr. 2, lactose gr. 10, or boric acid and powdered talc of each gr. 5, menthol centigr. 20, hydrochlorate of cocain centigr. 10, or aceto-tartrate of alumina gr. 1, lactose gr. 5. In more chronic cases it is necessary to paint the pharyngeal walls with iodised glycerine (equal parts of tincture of iodine and glycerine) or with this formula of Le Marc Hadour:

Iodi puri	.	.	.	25 centigr.
Potass. iodidi	.	.	.	2 gr.
Glycerini	.	.	.	20 gr.
Essent. m. pip.	.	.	.	4 m.

VINCENT DICKINSON.

The treatment of scurfy spots on the face in children ('*Rev. Mens. des Mal. de l'Enf.*' April, 1906, p. 191).—**Brocq** advises protection of the face from the action of wind and extremes of heat and cold, and the addition of borate or bicarbonate or boroborate of sodium to the toilet water, which is in many cases sufficient to effect a cure. If this is insufficient he recommends the application at bedtime of this ointment:

Borate of sodium	.	.	.	50 centigr.
Tincture of benzoin	.	.	.	15 drops.
Oxide of zinc	.	.	.	2 grm.
Simple ointment or pure vaseline	.	.	.	18 grm.

If this does not succeed an ointment is prescribed with salicylic acid 1 per cent. or resorcin or calomel from 1 to 5 per cent. according to the sensitiveness of the patient. He recommends also the old preparation of Vidal, which gives excellent results:

Tannin	.	.	.	2 grm.
Calomel	.	.	.	1 grm.
Glycerole of starch (Price's neutral glycerine)	.	.	.	30 grm.

This preparation is unstable and must be compounded fresh every eight days. In the morning the ointment must be removed with cotton-wool, the toilette of the face performed as above, and during the day a lotion applied two or three times such as the following:

Borate of sodium	.	.	.	5 to 10 grm.
Price's neutral glycerine	.	.	.	50 grm.
Rose-water	.	.	.	500 grm.

Attention should also be directed to the disinfection of the nasal and buccal mucous membranes.

VINCENT DICKINSON.

Scarlet fever ('*Pediatrics*,' 1906, p. 343).—**C. F. Shollenberger** discusses the prevention and treatment of scarlet fever. Children should not be exposed to infection on account of their great susceptibility. Anyone brought in contact with a case should bathe, change, and disinfect before going near children. The contagion may retain its virulence for some time and can be carried a long distance. The child should be guarded from exposure or any condition liable to make the throat raw and tender. Sore throats must be

viewed with suspicion. Even the mildest case should be isolated for four to eight weeks. The mild cases require little treatment except bed until a week after the fever has subsided, and milk diet up to ten to fourteen days after the rash has faded. Careful diet is an important prevention of acute nephritis. The secretions from the nose, ear, throat, and mouth should be removed on old handkerchiefs or pieces of linen and immediately burnt. Fæcal and urinary discharges should be disinfected. The room must be kept pure and fresh at 65° F. to 70° F., without exposure of the child to draughts. Examine the urine daily. Give a sponge bath once or twice a day. During desquamation, or if there is much itching, apply menthol gr. x, Ung. zinc oxidi $\frac{1}{2}$ oz., lanolin $\frac{1}{2}$ oz. Allow patient plenty of water to drink. Serum-therapy is of little value. For high fever use hydro-therapy. In giving a bath begin with lukewarm water and cool down gradually to the required degree of cold. Occasionally, especially in active delirium, a hot bath is more serviceable. Quinine and phenacetin are also useful. If the delirium persists, give potassium bromide and chloral hydrate. The throat in young children should be sprayed with hydrogen peroxide, boric acid, etc. Older children can use a mild antiseptic gargle. The chloride of iron is the most valuable drug for internal medication, 3 to 10 drops of the tincture every three hours. For cardiac weakness and septic or toxic symptoms give alcohol, strychnia, caffeine, and other stimulants. Special attention to the throat will often prevent otitis media. If earache develops, simple instillation of hot water may afford relief. Should this fail a 5 per cent. solution of cocaine with a few drops of tincture of opium may be used. If the membrane is opaque and bulging it should be incised and the ear irrigated with 50 per cent. hydrogen peroxide solution three times a day. The free evacuation of pus is essential to prevent deafness. Adenitis should be treated by ice-bags at first to stop suppuration. Arthritis is usually mild and yields to local applications of tincture of aconite $\frac{1}{2}$ oz., tinct. opii 6 drms. chloroform 6 drms., Lin. saponis ad. 4 oz., applied three times a day, the joint being then wrapped in absorbent cotton. Sodium salicylate is also useful. Cardiac complications, severe stomatitis, vomiting, gastro-enteritis, lung complications, and nephritis require appropriate treatment. Dropsy may be the first sign to attract attention to the nephritis. Large draughts of distilled water and simple diaphoretics should be used; pilocarpin subcutaneously, if simpler methods fail to produce profuse sweating. Compound jalap powder is the best cathartic. Cream of tartar lemonade, sweetened and flavoured with claret or port, is useful for young children. Later, a stimulating diuretic of acetate of potash and infusion of digitalis should be given. Poultices relieve pain in the back. Cupping and leeches to the kidneys are rarely suitable for the young. Take great care of the patient during convalescence. **H. Lowenburg** (*ibid.*, p. 354) emphasises the importance of already known facts in the etiology and preventive treatment of the nephritis. Albuminuria, sometimes with a few hyaline casts and epithelial scales, is found in early stages, just as in most acute infectious diseases. The acutely septic kidney is a complication of the very malignant cases and may prove rapidly fatal from suppression of urine and uræmia without œdema. The common type is the post-scarlatinal nephritis appearing in the third or fourth week, and generally insidious in onset. Another rarity is a recurrent intermittent post-scarlatinal albuminuria which has received little attention. It is much influenced by exercise and diet, and appears compatible with robust health. Nephritis is due to the excessive work thrown on the kidneys on account of loss of skin function and to the

increased toxicity and acidity of the urine. The toxin is peculiarly irritant to renal tissue, and this accounts for the severe nephritis sometimes seen in the mildest cases. Constipation is contributory by decreasing the elimination of toxins, so, too, an indiscreet diet of proteid foods. Cold also is an exciting cause. The preventive treatment is hygienic—milk diet until desquamation is complete, or from four to six weeks; fruit-juice to render urine alkaline, and a liberal amount of water; a daily bath with friction; enteroclysis, 1 to 8 oz. of normal saline solution once or twice a day; alkalies and laxatives, such as citrate or acetate of potash 5 to 10 gr. three times a day, minute doses of calomel every three or four days, and magnesium sulphate.

EDMUND CAUTLEY.

Chorea (*Pediatrics*, 1906, p. 372).—**D. Ingals** discusses the treatment of chorea, based on certain aspects of its pathology. Important features of the disease are the defective co-ordination, motor weakness, impaired muscular tonus, lack of emotional control, and impairment of the intellectual faculties. Rheumatism is probably the most common cause, and may be indicated by quinsy or "growing pains." The poison impairs the functions of the nervous bodies. Other toxic causes may produce a similar effect. Reflex causes may produce chorea by exhausting the cerebral neurons. Hence the primary factor in the treatment is the discovery and treatment of the cause. In treating the chorea itself, stop the waste of nervous energy—muscular, mental, and emotional. Bed and sleep are the best remedies. Chloral, trional, and veronal are the best soporifics. Children bear chloral well. In the worst cases it must be persisted in, and given in large enough doses to secure sleep. The second point in the treatment is liberal feeding. Forced feeding may be needed. Many nutritious small meals are essential. Fats are most valuable. Arsenic, phosphorus, strychnia, and iron are useful as metabolic stimulants. The lecithin in the yolk of eggs is also beneficial.

EDMUND CAUTLEY.

Surgery.

Hernia of the Fallopian tube in infants (*L'Echo Méd. du Nord*, May, 1906).—**Gaudier and Debeyre**.—The knowledge of these hernias without the ovary being in the hernial sac is of recent data; it is difficult of diagnosis and is discovered, as a rule, during an operation or a necropsy. It was first described in 1716, by Puech, but was lost sight of till a case was published in 1809, by Voigt, since when cases have been reported by Berard, Brunner Lejars, and others. The case recorded by the writers occurred in a child in whom it was discovered at the age of a fortnight, as a small lump the size of a nut, in the fold of the right groin, which appeared after an attack of whooping-cough; the tumour increased in size and could not be reduced. The external opening of the inguinal canal was concealed by the swelling. An incision revealed a blue-grey covering adherent to the surrounding structures; the tumour was enucleated and found to have a pedicle the thickness of a penholder. On opening, a little serous fluid escaped, and the Fallopian tube was seen of a blackish colour, as if strangulated. There was no other organ in the sac. The tube was excised and a radical cure done. The operation was quite successful, and the infant made a good recovery.

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TUBERCULOSIS OF THE MIDDLE EAR IN CHILDREN,
WITH SPECIAL REFERENCE TO ITS OCCURRENCE
AS A PRIMARY LESION.

By PAUL MATHEWS, M.D.

THERE are numerous considerations which combine to render tuberculosis of the middle ear and temporal bone a subject of great interest and importance, both clinically and pathologically. The number and variety of the channels through which infection may take place, the frequency of the condition, its occurrence in infants, the gravity of the condition and of its possible complications, the multiplicity and diversity of its signs and symptoms, the urgent necessity for drastic treatment, the possibility of absolute diagnosis and ultimate cure are the most important of these considerations.

Important as the subject undoubtedly is, it is only recently that much attention has been paid to it, and even now its frequency and gravity are not duly appreciated, nor are its signs and symptoms sufficiently detailed in the current text-books. Indeed, many of

them (even of those dealing exclusively with diseases of the ear) pass it by altogether or treat it with a brevity it ill deserves.

Before discussing the question in detail, it is desirable that it should be understood that in the following paper the term "middle ear" will be held to include, not only the cavum tympani, but also the mastoid antrum and Eustachian tube. This is fully warranted by the anatomy and the developmental history of these cavities, as has been insisted upon by Young and Milligan (1). Owing to the difficulties in determining the primary site of the tuberculous process in these parts it is convenient to consider tuberculosis of the middle ear together with tuberculosis of the temporal bone; for it is rare that cases of the former come under our notice before there is some involvement of the bone, and still less frequently do we encounter tuberculous caries of the temporal bone before the middle ear has become affected, except in cases where a temporal caries—unsuspected during life—is revealed upon the post-mortem table. That the two conditions can, and do, arise separately scarcely permits of doubt, but it is inconvenient for purposes of practical diagnosis and treatment to disassociate the two conditions.

Although the condition does not yet receive full recognition of its importance, its occurrence has been recognised for many years. The association of chronic otorrhœa with the scrofulous or strumous diathesis did not escape the observation of the physicians and surgeons of the early part of last century, and was insisted upon when the diseases of the ear became the subject of special study. In the absence of the evidence which we now regard as a *sine qua non* in the verification of the diagnosis of the condition, it is necessary that the cases described by early writers, and the conclusions they draw from them, should be accepted with considerable reserve. In discussing chronic otorrhœa Wilde (2) states that in children it is to be regarded as indicative of the strumous taint, and notes its frequent associations with scrofulous glands in the neck. He records many cases of chronic otitis media and caries of the temporal bone in association with lesions elsewhere of which we cannot doubt the tuberculous nature. There is obviously no reason why a patient suffering from a localised tuberculosis (*e. g.* of the ankle or lung) should not also suffer from a non-tuberculous otitis media, and we must therefore be cautious, in the absence of conclusive evidence of the nature of the middle-ear condition, in accepting such cases as examples of middle-ear tuberculosis. Wilde gives notes, however, of a case which scarcely permits of doubt as to its tuberculous nature, viz. that of a child of nine, who for several years suffered

from morbus coxæ, and in whom facial paralysis, preceded by chronic otorrhœa, developed first on one side and then on the other, death finally supervening from "cerebral disease" (tuberculous meningitis?). Wilde also refers to the occurrence of otitis media in phthisis, and suggests that infection spreads *viâ* the Eustachian tubes. He draws attention to the painless character of the condition, a point of some diagnostic importance.

Toynbee (3) clearly associates many cases of chronic otitis media with tuberculosis. He gives notes of many cases in which "scrofulous matter" was found in the tympanic cavity, but in most cases his notes are insufficient for our purpose. The following may, however, be accepted as genuine cases of tuberculosis of the middle ear or temporal bone:

(1) A boy aged 4 years. Post-mortem examination revealed tuberculous meningitis, with a tuberculous deposit in the cerebrum. The tympanic cavity contained "scrofulous material."

(2) A girl aged 1½ years. Post mortem showed tuberculosis of the lungs and mesenteric glands. The temporal bone was carious; there had been otorrhœa for seven months.

(3) A girl aged 15 years. Post mortem revealed tuberculosis of the lungs. The middle ear and mastoid were "scrofulous," and there was caries of the temporal bone. In life patient had had facial paralysis.

(4) A man aged 44 years, died from phthisis. Post mortem revealed caries of the petrous temporal. In life he had otorrhœa and partial facial paralysis.

He also mentions two cases in infants, aged 1 year and 4 months, and 11 months, in whom there was long-standing otorrhœa and "scrofulous glands in the neck." The condition of the viscera is not mentioned in the post-mortem notes of these two cases.

Other references to the condition are found in the writings of Nélaton, Rokitansky, and others.

From what precedes it will be seen that the condition was recognised many years ago, and many of the recorded cases, in spite of the absence of the conclusive evidence afforded by the detection of the tubercle bacillus, may be regarded as authentic.

The discovery of the bacillus tuberculosis by Koch in 1882 placed in our hands a means of diagnosing the condition with certainty. The bacillus was demonstrated in the aural discharge by Eschle (4) in 1883, and subsequently Nathan (5), and more recently Grimmer (6), Wingrave (8), Milligan (7), and others have demonstrated the frequency of its occurrence. The literature on the subject has

grown apace, numerous cases have been recorded and analysed, and the symptoms, etiology, and pathology have been elaborated by many observers.

In discussing the association of tuberculous otitis media with late phthisis, Wilde (2) suggested that the Eustachian tube was the avenue of infection of the tympanic cavity. This has largely been accepted as probable by subsequent observers; but the occurrence of cases in which no pulmonary tuberculosis exists, and of cases in which the tuberculous process is confined to the temporal bone, point to the possibility of other channels of infection, and suggest that the tuberculous lesion in the middle ear may in some cases be primary, and not secondary to tuberculosis elsewhere. Many cases of primary tuberculosis of the middle ear or temporal bone have been recorded by Knapp (9), Goldstein (10), Williams (11), McCaw (12), Oppikofer (13), Jobson Horne (14), Hurd (15), and others. It is not intended to detail or to analyse these cases here; and the following cases are quoted briefly to indicate the nature of the condition of which they are typical.

(1) Case recorded by Jobson Horne (14), a child aged $1\frac{1}{2}$ years. History of wasting for seven months, with otorrhœa for four months and cough for three months. When seen had facial paralysis, otorrhœa, and swelling behind ear due to subperiosteal abscess, which was incised, necrosed bone being found. The aural discharge contained tubercle bacilli. Death subsequently ensued from miliary tuberculosis.

(2) Case reported by Hurd (15), child aged 1 year and 5 months. A swelling over the mastoid was lanced when patient was six months. The wound refused to heal, and later necrosis of the bone ensued. Microscopic examination of the granulation-tissue showed evidence of tuberculosis. The child showed no signs of tuberculosis elsewhere.

(3) Case reported by Knapp (9), child aged 5 years. Patient had tuberculosis of bone in the back, ankle, above right eye and below left eye. There was a granulating ulcer behind the right ear leading down to carious bone. There was no sign of disease of the external meatus or of the *cavum tympani*, the mastoid alone being affected.

(4) Case reported by Oppikofer (13), child aged 6 months. Discharge from ear following measles. Patient had facial paralysis; the antrum contained pus; granulations from the *caverni tympani* showed tuberculous changes. Death occurred seven months later from general tuberculosis, the lungs, larynx, and meninges being affected.

An interesting case is recorded by Freysing (52), in which there were multiple tuberculous tumours on the skull, together with involvement of both tympanic membranes.

ETIOLOGY.

That the condition should occur not infrequently in late phthisis need not surprise us when we recollect the channels of infection. It is difficult, however, to estimate its frequency, and the published statistics differ widely. Thus Schwabach (16) found aural suppuration in eight cases out of 139 patients suffering from pulmonary tuberculosis. Moldenhauer (17) found seven cases of middle-ear suppuration in 294 cases of tuberculosis (pulmonary and otherwise). Carr (18) in 120 post-mortem examinations on children dying of tuberculosis found the middle ear and temporal bone tuberculous in three cases. Price-Jones (53) in twenty-one cases of tuberculosis in children (examined post mortem) found it in two cases. Still higher figures have been published. Thus Still (19) in the post-mortem examination of 269 tuberculous children found the middle ear tuberculous in fifteen, and of these he regarded the aural condition as primary in no less than nine. In a series of twenty-five post-mortem examinations of tuberculous subjects at the Newcastle Sick Children's Hospital, the writer (44) found evidence of the condition in the middle ear or temporal bone in seven cases, in two of which it was unsuspected during life.

Whilst it has been shown that middle-ear tuberculosis is more frequently a complication of phthisis with cavitation than of any other form of pulmonary tuberculosis, it is also a well-established fact that in children cavitation occurs with much less frequency than in adults; indeed, it rarely occurs in patients under seven, and in infancy is almost a pathological curiosity. Under these circumstances we should expect to find tuberculosis of the middle ear less frequent in infancy than in adult life were its occurrence dependent on infection from pulmonary tuberculosis. The very reverse, however, is the case. Tuberculosis of the middle ear occurs more frequently during infancy than in any other period of life. Indeed, after the third or fourth year its frequency undergoes marked diminution, and except as a complication of late phthisis it is subsequently a rare affection. Its frequency in infancy is well shown by Whitehead (22), who, analysing 100 consecutive fatal cases of middle-ear disease, found that 12 were cases of tuberculosis of the middle ear, and of these no less than nine occurred in children under two

years of age, and in eight of these the aural condition appeared to be primary.

It has been maintained by Horne, Grimmer, and Milligan that the condition is not infrequently primary in infants, an hypothesis well sustained by the figures quoted above. It has been stated by Milligan (21) that of his hospital patients under six years of age suffering from suppurative otitis media between 50 and 60 per cent. suffer from tuberculosis of the middle ear.

The fact that the tympanic condition may be primary must not be overlooked in considering the etiology of the condition.

Tuberculosis in infants and children is, unfortunately, only too frequent, and it has largely been ascribed to invasion through the lymphatics of the alimentary tract, from which the milk of tuberculous cows has largely been assumed to be the vehicle of infection. It is even asserted by Nathan Raw (54) that this is the almost invariable mode of invasion in infants. It must not be forgotten, however, that so far as bacteriology is concerned the middle ear is to be regarded as a portion of the upper respiratory tract, as has been emphasised by Goldstein (10) and others. If tuberculosis of the middle ear, then, is primary it must be regarded as a case of "respiratory" rather than "alimentary" tuberculosis. The fact that the patients are most frequently infants, and that they are derived from a class who are not largely fed on cow's milk, lends support to the view that infection is *viâ* the upper respiratory rather than the alimentary tract. It has been pointed out by Milligan that the condition is much more frequent in hospital patients than in children of the upper classes. No doubt unhygienic conditions and overcrowding are important factors, nor must we overlook the importance of the presence of tuberculosis in other members of the family with whom patient may be in constant contact. Of our own series six had a family history of tuberculosis. As regards the infection from cow's milk, it is interesting to know that of the five cases under one year of age three were breast-fed entirely until admission to hospital, and one had been fed entirely on patent foods.

The occurrence of the condition in cases of tuberculosis involving other organs has been studied by many observers. It is stated to occur with greatest frequency late in phthisis, when the sputum is most abundant and most likely to remain near the pharyngeal openings of the Eustachian tubes, owing to the diminution of the patient's expectorating power—*i. e.* when the chances of infection *viâ* the Eustachian tubes are at a maximum. Politzer (23) has shown that infection may arise during the last few days of life. It may,

indeed, be merely a part of a general tuberculosis which closes the scene. Brieger (24) and Milligan (21) state that the middle ear is more liable to be infected secondarily to pulmonary tuberculosis than to tuberculosis elsewhere.

CHANNELS OF INFECTION.

To produce tuberculous lesions in the middle ear or temporal bone it is necessary for the bacillus to gain access to these parts, and this it may do by one or other of several channels, which are :

(1) By the air passing up the Eustachian tubes and mechanically conveying the bacilli to some part of the middle ear.

(2) By infection spreading up to the cavum or antrum *viâ* the Eustachian mucosa.

(3) By infection spreading *viâ* the lymphatics from lesions elsewhere.

(4) By infection carried by the blood-stream from tuberculous lesions elsewhere.

(5) By infection from the external ear.

The first-named method may at first sight appear improbable. We cannot, however, dismiss it without first duly considering the factors which may influence its occurrence.

The general anatomy of the Eustachian tube is so well known that it is unnecessary to enter into its details here. Certain facts, however, may profitably be reviewed in order that we may fully appreciate the possibilities of this line of infection. In the adult the tube is from 34 to 36 mm. in length, but in children it is much shorter, being, indeed, in the new-born infant less than 20 mm. in length. Its width is comparatively (and it is even stated by Eitelberg actually) greater than in adults. Hence any object lodging in the tube is more liable to be removed by currents of air in children than in adults. In children, too, the tympanic orifice lies lower, and is comparatively larger than in adults, and the pharyngeal orifice lies much nearer to the choanæ, and therefore to the currents of air by which air-borne bacilli may enter. It has been shown by Young and Milligan (1) that smoke insufflated into the Eustachian tube passes directly through the cavum tympani into the antrum, and that air-borne bacilli may similarly gain entrance to the antrum by no means inconceivable. It is true that the bacilli will in the majority of cases tend to alight on the Eustachian mucosa and be removed from thence by the cilia lining it, but in the short, wide tube of infants the possibility of the bacilli

being driven beyond the tympanic orifice by the strong blasts of air produced by efforts such as sneezing, coughing, etc., is greater.

Even in adults particles much larger than bacilli may thus gain entrance, as is proved by the case reported by Haug (25), in which particles of snuff gained access to the cavum by this method, and there set up a purulent otitis media. Similarly, it is not impossible that minute particles of food may be mechanically insufflated into the tympanic cavity by the act of choking or vomiting, and thus convey the bacilli into the cavity of the middle ear. It has been suggested by Milligan (26) that the movements of sucking initiate currents of air along the Eustachian tubes, and thus help to account for the frequency of the condition in infancy.

In the production of the condition in late phthisis this method again appears probable. In the wasted condition of advanced pulmonary tuberculosis the tissues surrounding the tubes are shrunken and atrophied, and the lumen of the tube becomes wider than in health—Habermann (27). It has been shown by Jobson Horne that aural tuberculosis is much more frequent as a complication of pulmonary tuberculosis when there is cavitation than when the pulmonary lesions are miliary in type. The frequent coughing and the abundant sputum also render it likely that particles of sputum laden with bacilli may be driven through the tube into the cavum tympani. It is at least suggestive that the condition should be so frequent in late phthisis and in early childhood, when the conditions favouring this mode of infection are at their maximum.

The second method, viz. *invasion by spreading of the tuberculous processes along the Eustachian tube*, is subject to the same conditions as the first, and would appear to be of more frequent occurrence. The two methods are so closely connected that we cannot entirely dissociate them. It is important to remember that the middle ear should be regarded as a part of the upper respiratory tract, as has been insisted upon by Jobson Horne (28) and Goldstein (10). The latter states that "over 70 per cent. of the inflammatory and infectious processes which involve the ear have their origin in the pharyngeal and naso-pharyngeal cavities." Politzer also regards this line of invasion as the most frequent.

While tubercle bacilli driven into the tympanic cavity tend to remain there, there is a greater probability of them being removed from the Eustachian tube by the ciliary movement should they chance to alight on the Eustachian mucosa. Hence it follows that while there is a greater possibility of bacilli gaining access to the Eustachian mucosa, there is also a greater probability of them being

removed before inciting tuberculous changes. It is possible, however, that under favourable circumstances the bacilli may pass through the mucosa, without producing in it any lesion, to the lymphoid follicles which have been seen and described by Gerlach in the mucosa lining the tubes in children.

The probability of tuberculosis originating in this manner is enhanced by the occurrence of catarrhal changes such as are frequently produced in the exanthemata, etc. Politzer (23) has frequently seen tuberculosis of the middle ear, associated with enlargement of the cervical glands, following on an attack of scarlet fever.

In addition to the exposure of the orifices of the tubes to the inspired air whereby air-borne bacilli may reach the Eustachian tubes, there is also danger of infection of the tubes by spread of tuberculosis from adjacent structures. Primary tuberculosis of the nose and of the pharynx are both rare except as complications of late phthisis, and the chances of infection from these areas appear to be remote; we must not forget, however, that the presence of excessive adenoid tissue in close proximity to the openings of the tubes introduces another factor of considerable importance.

The frequency with which "adenoids" are subject to tuberculosis has been variously stated by different authors. Thus McBride and Turner, examining adenoids removed from 100 patients, found evidence of tuberculosis in only three cases (a figure which they admit is probably an under estimate). Pilliet (30) found tuberculosis in three cases out of forty (7·5 per cent.). Dieulafoy (31) in thirty-five cases found tuberculosis in seven (20 per cent.). Brindel (32) found evidence of tuberculosis in eight cases out of sixty-four (12·5 per cent.); Gottstein (33) in four cases out of thirty-three (12 per cent.); Pfuder and Fischer (34) in five cases out of thirty-two (15·6 per cent.); Milligan (35) found it in 16 per cent., as also did Lartigan and Nicol (61). To obtain the above estimates histological and inoculation methods were employed. It is interesting to note that the most exact method—inoculation—gave the highest figure (Dieulafoy, 20 per cent.). It will be seen that "adenoids" are by no means infrequently the seat of tuberculous changes, and their presence may be an important factor in producing tuberculosis of the middle ear.

The third method of infection, viz. *via the lymph-current* from the glands, can occur only by extension against the lymph-stream from the glands through which the lymphatics of this area pass. Such extension has been shown to occur elsewhere, and we must accept

its possibility in this case. Unfortunately, the lymphatics of this area are not well determined, and our knowledge of their anatomy is very imperfect. Poirier and Cuneo (36) affirm that the lymphatics of the cavum tympani originate in a network from which branches run to the retro-pharyngeal glands, which also receive afferents from the Eustachian tube. These glands are two in number on each side, and lie behind the pharynx, in front of the lateral masses of the atlas. In addition to draining the middle ear, these glands receive afferents from the pharynx (in its upper part), and from the nasal fossæ. Efferents run to the superior cervical glands lying alongside the internal jugular vein. It will be seen that these glands drain an area which is much exposed to bacterial invasion. When we recollect the frequency of posterior rhinitis, pharyngitis, and Eustachian catarrh occurring in the exanthemata, or as part of ordinary "colds," we are not surprised at the occurrence of inflammation of these glands. Clinically, however, we find that this rarely occurs except in infants and young children, and it is even stated that these glands undergo spontaneous atrophy towards the close of the third year (62). Prior to this suppuration in them not infrequently occurs, and is the most frequent cause at this age of retro-pharyngeal abscess.

The wide area drained through these glands renders it difficult for us to appreciate the frequency with which Eustachian and tympanic infections are the cause of their enlargement. We must not forget, however, the possibility of the middle ear and its adnexa being infected secondarily to tuberculosis of these glands, the original seat of invasion possibly lying in the nasal or pharyngeal mucosa.

The association of tuberculosis of the middle ear with lesions of these glands is suggested by the age-incidence of the two conditions.

Clinically, tuberculosis of the middle ear is often associated with enlargement of the lymph-glands lying over the mastoid process and also with those in the superior cervical chains. Indeed, early involvement of these glands in the course of chronic otitis media has been held by Grimmer, Milligan, and others to be indicative of the tuberculous nature of the middle-ear condition.

Infection through the blood-stream from a focus more or less remote is of the utmost importance. Barnich (37) has shown that this method occurs most frequently when the lesion from which infection takes place is situated in some part of the osseous or glandular system. It is precisely these two forms of tuberculosis which are most frequent at the age at which tuberculosis of the

middle ear most frequently occurs. Such a mode of extension implies that the condition may not of necessity begin in the tympanic mucosa itself. In fact, cases originating in this manner in all probability usually arise as an osteomyelitis of the pars mastoidea or pars petrosa of the temporal bone, and involve the middle ear by extension. Such a method would fully explain the occurrence of cases in which the pars mastoidea is extensively affected while the tympanic cavity remains unaffected, though such cases may conceivably arise through the infection of the antrum through the Eustachian tube.

There are many phenomena associated with the condition which favour this mode of origin. The age-incidence is important, for it is undoubted that blood-infections are more frequent in childhood and infancy than later in life, as also are tuberculous affections of the bones. It can be shown that not only is tuberculosis of the osseous system more frequent in early life, but also that certain bones are more frequently affected at certain ages than at others. Thus dactylitis is most frequent during the first three years of life. During a year at the Newcastle Sick Children's Hospital fifteen cases of spinal caries were admitted for treatment. In twelve of these cases the caries affected the lower cervical or upper dorsal spine, and all these patients were between two and five years of age. The other three patients were older and in them the caries affected the lower dorsal or lumbar spine. To generalise on such small numbers would be to court fallacy, but these figures were supported by the out-patient statistics. Without pressing the point too far, it may be possible that the occurrence of such a large majority of so-called "primary" cases of tuberculosis of the mastoid in the first and second years of life may depend upon, or be associated with, a similar predilection.

In this connection it may be mentioned that the stapes is more frequently affected in tuberculous than in any other form of middle-ear inflammation. The ossicle develops round the stapedia artery, which usually atrophies and disappears towards the close of pregnancy; not infrequently, however, it persists some two or three years after birth, and may thus be the means of carrying blood-bone bacilli to the middle ear. In addition to the age incidence the occurrence of extensive caries is of importance. Many cases when first observed show extensive caries of the temporal bone, a fact which might be ascribed to the absence of symptoms produced by the condition until by extension the tympanic cavity becomes infected. Milligan is of opinion that the osteomyelitis tends to remain as such

until secondary septic processes arise in the cavum tympani or antrum. Cornet (38), on the other hand, thinks that caries of the temporal bone is generally secondary to infection of the tympanic cavity.

Associated with this early and extensive caries is facial paralysis, which may be the first indication of the condition.

That such a mode of infection exists permits of no doubt. The case reported by Knapp (9) is undoubtedly of this nature, as also in all probability the cases quoted above from Wilde (2) and Hurd (15). The occurrence of tuberculous deposits in this region in acute miliary tuberculosis has been observed, but it is of no practical importance.

The establishment of tuberculosis of the middle ear by *invasion from the external meatus* may occur, but is probably of rare occurrence. In cases where the drum has been perforated it is not impossible that the introduction of foreign bodies into the meatus may be the means of introducing bacilli into the middle ear.

Examination of these methods shows that each is possible. Practically the cases will tend to fall under one of two headings:

(1) Cases in which the middle ear has been infected through the Eustachian tube or the air passing up it, such cases including those in which phthisis pre-exists, and also the true cases of primary tuberculosis of the middle ear. From what precedes it may be stated that the occurrence of the latter is greatly favoured by the conditions which obtain in infancy, during which period such cases are more frequent than at any other period of life.

(2) Cases in which the lesion is due to blood-infection, the mucosa of the middle ear or the temporal bone being the site of the lesion. Such cases include most of the so-called "primary tuberculous mastoiditis," etc. It has already been shown that such cases are most likely to occur in infancy owing to the increased frequency of bone-tuberculosis and of blood-infection during that period.

PATHOLOGY.

The tubercle bacilli, having gained access to the middle ear by any of the above routes, there give rise to the changes characteristic of tuberculosis. These changes have been described by Politzer, who examined histologically the mucosa lining the tympanum of a woman who died from phthisis complicated by otitis media. In this case the mucosa was largely destroyed and the bone extensively affected. Habermann (39) examined thirteen cases, and found all degrees of the condition from early infiltration down to extensive

destruction of the temporal bone, and the researches of Barnich (37) and of Schwabach have extended our knowledge of the progress of the condition.

The changes induced differ somewhat according as the condition runs an acute or a chronic course. In the acute form there is rapid loss of tissue, consequent upon the ulceration of the tubercles, which are deposited in large numbers. This leads to perforation of the membrana and rapid formation of granulation-tissue. Occasionally the primary grey tubercles are visible on the membrana, in which situation they are not infrequently multiple, and Milligan (35) has been able to see them on the inner wall of the cavity through a semitransparent membrana. Although they so soon lead to perforation of the drum, they have been described by Politzer, prior to this, as pearly grey spots, with sharply-defined outline, and with little surrounding inflammation, though in some cases the whole drum may assume a pink tint. As already stated, they rapidly lead to perforation, and if they are multiple they may by coalescence form a single large perforation, or they may remain discrete. The occurrence of multiple perforations is a point of considerable diagnostic importance. Owing to the occurrence of perforation, and to other causes, it is usual for septic and putrefactive organisms to gain entrance and to speedily modify the pathological processes.

While the acute form is a well-established entity, it is more usual for the condition to run a chronic course, and it is this chronic tuberculosis which presents the most typical picture. Owing to the intimate connection between the temporal bone and the tympanic mucosa—the deeper layers of which fulfil the functions of periosteum to the subjacent bone—the occurrence of tuberculous changes in the mucosa early leads to tuberculous infection of the bone, in which a cario-necrotic change is instituted. The process of the ulceration of the tubercles in the mucosa, leading to caries in the bone, has been fully described by Milligan. The caries progresses rapidly, and, as in tuberculous caries elsewhere, is not productive of much pain.

The reaction of the tissues excited by this chronic tuberculosis is not intense; and hence, instead of the hyperæmic mucosa associated with an acute otitis, we find pale, ulcerated mucous membrane with profuse flabby granulations, which fill the cavity, and may even project through the perforated drum and form polypoidal masses in the external meatus. These granulations may show typical tuberculous changes, such as giant-cell formation, caseation, etc., as has been observed by Hurd and Milligan.

The caries extends steadily, and encounters no bar to its progress until dura mater or periosteum is reached. The dura is rarely perforated, but tends, as in Cases 2 and 10, to become thickened over the underlying caries.

The extension of the caries is of great importance in the production of complications, which may arise from implication of structures within the temporal bone. Thus the extension to the Fallopian aqueduct may cause facial paralysis, at first partial (from neuritis) and finally complete (from destruction of the seventh nerve). The production of this complication is favoured in infancy by the incomplete ossification of the walls of the aqueduct, which do not offer so much resistance to the disintegrating processes as they do when ossification is complete. Similarly, the labyrinth may be affected, and complete nerve-deafness, or—by involvement of the semicircular canals—persistent vertigo ensue.

Caries of the ossicles occurs with considerable frequency. In no other middle-ear condition are the ossicles so frequently destroyed. Caries of the foot of the stapes is considered by Haike (40) to be pathognomonic of tuberculosis. If this occurs the fenestra ovalis is soon destroyed, and the labyrinth thus becomes involved. Perforation of one or other of the fenestræ has been stated to occur in 33 per cent. of cases (35). Mention has already been made of the possibility of the stapes being primarily infected in early infancy.

Although the bony changes are usually of the nature of a gradual disintegration, necrotic changes may occur and large sequestra be exfoliated, as in a case described by Goldstein (10).

In addition to the involvement of the nervous apparatus blood-vessels may be eroded and hæmorrhage occur. Kössel (41) has described a case in which thrombosis of the lateral sinus was produced. A similar case (No. 6) is included in our series, but in this case there is reason to believe that the thrombosis was due to a septic organism rather than to the tubercle bacillus, though the latter was also present in the middle ear. Cheatle (55) has pointed out the importance of the petrosquamosal sinus as a channel of infection from the middle ear, and records a case in which miliary tuberculosis was so produced.

The occurrence of mastoiditis is not infrequent, and, as has been shown by Knapp, Hurd, Jobson Horne, and others, the antrum may be extensively affected before the cavum shows any signs of the condition. This appears more likely in such cases as the condition commences as an osteomyelitis of the pars mastoidea, but does not entirely depend on this mode of origin, as it has been shown by

Young and Milligan that in cases of infection through the Eustachian tube mastoiditis may occur independently of inflammation of the *cavum tympani*.

Owing to the early perforation of the drum other organisms gain access and alter the course of the tuberculosis. Hence it is difficult to follow the later changes of the condition. The invasion of other organisms introduces a further difficulty in diagnosis, for the tubercle bacilli are apt to be disintegrated and destroyed in the profuse discharge which is associated with the presence of putrefactive organisms. Hence the great difficulty in detecting the bacilli in stained films of the discharge in which they are never abundant, except in some acute cases.

The presence of tubercle bacilli in the middle ear soon leads to enlargement of the neighbouring lymph-glands, in which the chronic inflammatory changes of tuberculosis—viz. formation of tubercles, giant-cell formation, and caseation—occur. These changes appear clinically to be usually first produced in the mastoid glands, from which subsequently the deep glands of the neck are infected. Glands in the parotid region may also be affected, as in Case 11, and the retropharyngeal glands are also liable to infection. In the present series they were enlarged sufficiently to cause symptoms in one case only (No. 3), but whether the glandular condition was secondary to the middle-ear condition in this case cannot be determined with certainty, for the tuberculous condition of the ear was only discovered post-mortem some months after the retropharyngeal glands became enlarged.

It is affirmed by Jobson Horne (42) that early glandular enlargement occurs in primary tuberculous conditions of the middle ear, but that the glands rarely become involved in cases where the condition of the ear is secondary to tuberculosis elsewhere.

Infection of the meninges is not infrequent as a complication which may ultimately cause death. Macewen (43) alludes to ten cases in which it occurred, in five of which the internal auditory meatus formed the line of infection. He has also found it produced by miliary tuberculosis, resulting from infection of the lateral sinus. Owing to the late union of the petrous and mastoid portions of the temporal bone, meningeal infection is more likely to occur in infancy than later. Not infrequently the meningeal condition is merely a part of a general miliary tuberculosis caused by blood-infection, to which infants during the second year of life are so prone. In the present series general miliary tuberculosis was the cause of death in four cases (Nos. 1, 2, 3, 10), while meningitis only occurred in one

(No. 5) in which case, unfortunately, permission for post-mortem examination was not obtained.

Mention is frequently made throughout the literature of this complication, and cases in which it has occurred are recorded by Wilde, Milligan, Oppikofer, and numerous others. Horne states that this complication is not infrequent in cases of primary tuberculosis of the ear, but that its occurrence in cases where the tuberculosis of the middle ear is secondary is uncommon. On the other hand, it is affirmed by Politzer (23) that intra-cranial complications are less frequent in tuberculosis than in any other form of chronic middle-ear infection.

The occurrence of intra-cranial abscess is rarely seen. In the present series intra-cranial complications occurred in two cases only (Nos. 5, 6), in one of which there is reason to believe that this complication was associated with the presence of streptococci. Wingrave (56) has recorded an interesting case in which optic neuritis was produced.

The extension of the carious process in the other direction often leads to the formation of subperiosteal caseation and abscess-formation. If the pars mastoidea be affected this may occur just over the antrum, or by extension inwards Bezold's perforation may ensue. On cutting down over the swelling in such cases a fistulous track filled with unhealthy granulations and caseous *débris* and leading down to the antrum is found, as in Cases 1, 2, 3, 9, and 10. If left untreated these mastoid abscesses may burst through the skin, leaving a chronic indolent fistula, showing no signs of healing.

The fact that the Eustachian tube is shorter and wider in infants than in adults, and that the tympanic orifice lies lower and is of larger size, increases the probability of the thin, sanious discharge draining from the middle ear into the pharynx, from whence it may be swallowed and so convey bacilli to the lower alimentary tract. This may account for the frequency of the occurrence of enteritis as a complication, to which Milligan (57) has drawn attention. Such a condition would account for the frequency of diarrhoea in these patients, though such a symptom may in many cases be due to general conditions rather than to local tuberculous inflammation.

While it will be seen that the complications which may occur are many, it is doubtful if the condition ever undergoes spontaneous cure. Politzer even casts doubt on the authenticity of cases reported as cured by operative interference. While it appears doubtful that cases occurring in late phthisis should be curable, it is not impossible that some primary cases may be cured by operation. It must be

remembered that these cases occur at an age when rapid and widespread dissemination of tuberculosis occurs, and it is impossible in many cases to be certain that the aural condition is the only existing focus of infection. Indeed, owing to the slowness with which the condition declares itself, and the asthenic character of the inflammatory processes induced by it, it is probably infrequent that such cases come under observation before such dissemination has already occurred.

SYMPTOMS.

The symptoms produced by the condition are numerous and varied. In considering them it will be advisable to deal separately with the general symptoms and with those which are dependent on local conditions. The general symptoms are, broadly speaking, those of tuberculosis generally. It is remarkable, however, that these may be absent in some cases where the local disease is extensive. Amongst the most prominent of the signs and symptoms must be placed *wasting*. Not infrequently this may have been noticed some time before the local condition declares itself, and in some cases the patient is originally brought to a physician for the relief of this symptom. While the wasting process may be extensive, it must be admitted that many cases are seen in which general nutrition is good throughout (see No. 12). It is not improbable that the wasting is most marked in cases where the tuberculosis is generalised and where there is more than one focus of disease (see Cases 7 and 9); at the same time, it has been met with to a marked degree where the aural condition is primary, and where dissemination only occurs in the final stage of the condition (see Cases 1 and 10). We have no reason to doubt that the symptom is due to the general effect on nutrition caused by the absorption of the tuberculous toxin rather than to any local factor.

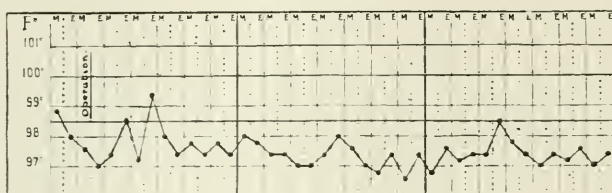
In some cases this wasting is augmented, if not caused, by the occurrence of intractable *diarrhœa*. This appeared in some of Milligan's cases, and was well marked in Case 1 of the present series. It may occur at any stage of the condition, though from its nature it is more likely to be a terminal event. The *appearance of the patient* is in many cases suggestive of tuberculous mischief. The dryness of the skin which is so frequently noticed in tuberculous peritonitis, etc., is in many cases very marked, and cannot in every case be accounted for by the occurrence of *diarrhœa*.

The presence of *rashes* on the skin has not, apparently, been

noticed by other observers, and if present it is improbable that they are due to the local condition but rather to a general toxæmic state. One case (No. 1) of the present series developed, a few days before death, a general erythematous rash, lasting for a day or two and then subsiding. It was followed by severe diarrhœa, and on post-mortem examination miliary tubercles were found in the lungs and spleen.

In two cases of the present series (Nos. 2 and 9) scattered petechial

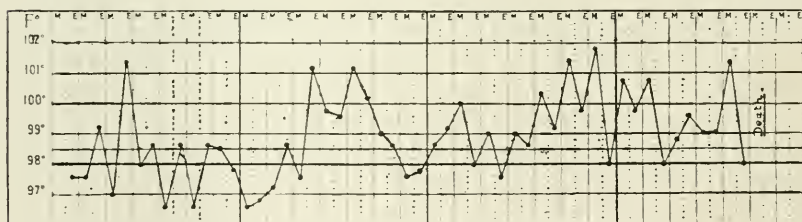
CHART 1.



CASE 12.—Uncomplicated tuberculous otitis media.

hemorrhages occurred in the skin. They were few in number, occurred irregularly, and showed no typical distribution. In both cases they were seen several weeks before death and in only one case was there miliary tuberculosis. In both cases there were caseating tubercles in the spleen. In Case 2 these spots were noticed

CHART 2.



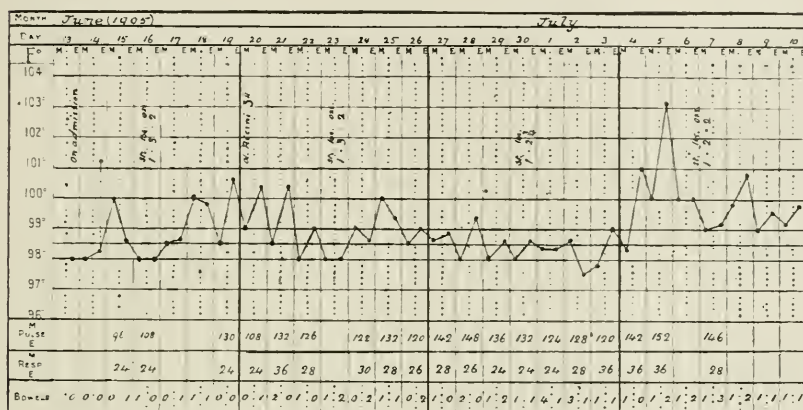
CASE 10.—Primary tuberculosis with extensive destruction of middle ear and temporal bone.

two months before death, and there was a large eruption of fresh hæmorrhagic spots a few days prior to death. The occurrence of these spots cannot have any causal association with the aural condition, but seems to depend, as indicated by the splenic condition, upon some hæmic condition caused by the dissemination of the tuberculous virus, and as such their occurrence in cases of tuberculous otitis has a grave significance.

The *temperature*-chart of a patient suffering from aural tuberculosis

displays nothing that can be recognised as typical. In cases uncomplicated by tuberculosis of other organs there may be little or no rise of temperature (see Chart 1), as might be expected when we recollect the asthenic character of the condition. The presence of other organisms, however, tends to cause elevation and irregularity

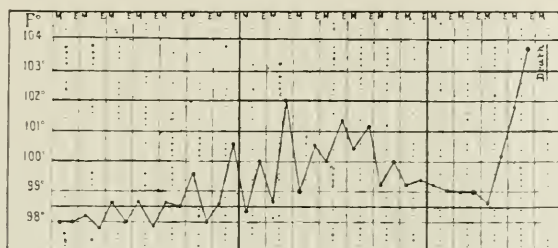
CHART 3.



CASE 7.—Tuberculosis of middle ear with extensive general tuberculosis.

of the temperature. In cases where miliary dissemination supervenes we may see evidence of its occurrence in rapid alteration of the type of the temperature curve (see Charts 4 and 5). In cases where there is extensive caseating tubercle, either locally (see Chart 2) or in some

CHART 4.



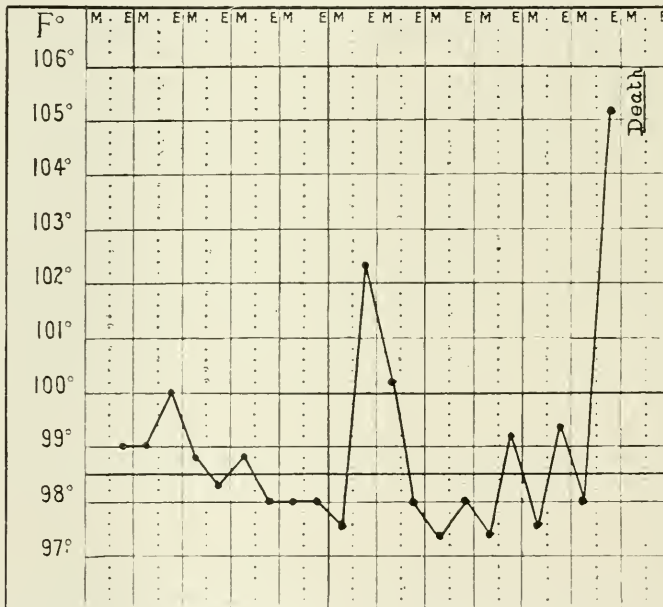
CASE 5.—Tuberculosis of middle ear terminating in meningitis.

other organ, the typical swinging temperature may be observed, particularly where there are numerous foci (see Chart 3). Some primary cases (see Chart 2) display marked variations in temperature.

Consideration of the pathological processes involved, and of the complications to which the patient is liable, give many indications

of the symptoms which we may expect in this condition. In acute cases the symptoms are those of an acute otitis media, and nothing pathognomonic is noticed for some time; and it is frequently not until the condition has entered a chronic stage that suspicion is aroused by enlargement of the lymph-glands, facial paralysis, etc. In chronic cases the essentially asthenic nature of the processes fully account for the *absence of pain*, from which the patient is usually free. This absence has been commented upon by every one who has studied the condition. It has been suggested by Urban

CHART 5.



CASE 1. — Primary tuberculosis of middle ear ending in acute miliary tuberculosis.

Pritchard (45) that this absence of pain can be accounted for by the lack of pressure on the nerves, the early perforation of the drum preventing the occurrence of increased tension in the cavum tympani. On the other hand, it has been suggested by Jobson Horne (42) that the absence of pain is due to the anæsthetic action exerted by the decomposition products of the waxy envelopes of the bacilli themselves. The absence of pain is not peculiar to this condition, but is found in tuberculous osteomyelitis of any bone prior to the involvement of surrounding structures or the advent of mixed infection.

(To be continued.)

A STUDY OF THE MORTALITY FROM CONVULSIONS AND THE "RICKETS GROUP" OF AFFECTIONS IN INFANCY.*

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CONVULSIONS, TEETHING, RICKETS, LARYNGISMUS STRIDULUS, AND SCURVY.

THESE conditions, which are here arranged in the order of their fatality as shown in the returns of the Registrar-General, are so intimately associated and related one with another that they may conveniently be considered together. In 1903 they were together responsible for the death of 16,182 infants, equal to a rate of 17·05 per 1000 births as shown in the following table : †

Convulsions and "Rickets Group," England and Wales, 1903.

Cause of Death.	No. of Deaths.	Deaths per 1000 Births.
(a) Convulsions	13,283 .	14·01
(b) Teething	2,003 .	2·11
(c) Rickets	624 .	0·66
(d) Laryngismus	259 .	0·27
(e) Scurvy	13 .	0·00
	<hr/> 16,182	<hr/> 17·05

It is proposed to show that the underlying or predisposing condition is probably in each case more or less closely related to, and dependent upon, improper food, acting either as an irritant or by producing malnutrition. It is further proposed to show that rather a different significance should attach to the deaths from these causes according to the age-period of the first year in which the deaths occur, and more especially of the deaths in the first three months of life as distinct from those occurring in the age-period 6 to 12 months.

It will first be necessary to indicate a few points in the etiology of each of these causes of death under their separate headings.

* Part of a Thesis for the Degree of M.D. (Gold Medal).

† Compiled and calculated from the Sixty-sixth Annual Report of the Registrar-General.

(a) Convulsions.

Taylor * summarises the circumstances under which infantile convulsions occur as follows :

(1) The onset of acute diseases, such as scarlatina, measles, and pneumonia.

(2) Local diseases of the brain, of which acute meningitis is the most frequent.

(3) Great exhaustion, as after prolonged diarrhœa.

(4) Venous congestion of the brain, such as may be caused by an attack of whooping-cough.

(5) Rickets is now held responsible for the majority of cases of infantile convulsions not included in the above groups. Often the fit is induced by some peripheral irritation, such as indigestible food, intestinal worms (especially lumbrici), cutaneous irritation, such as pins in the clothing, instanced by Trousseau, or the process of dentition. Perhaps too much has been made of teething as a cause of convulsions, since delayed dentition is a constant result of rickets, and so would co-exist with convulsions in a large proportion of the cases. Sometimes no exciting cause for the fit can be discovered.

(6) Some infantile convulsions must be regarded as really epileptic, since epilepsy may begin in infancy.

As regards the age-incidence of convulsions this author only generally remarks, "Convulsions occur with much greater readiness in infancy than in later periods of life." Ashby † is more definite, and recognises that, while the whole period of childhood predisposes to convulsions, certain factors operate more especially during the first few months of life.

(b) Teething.

Teething is a physiological process, and as such is attended by but little or no irritation. Taylor, as already quoted, suggests that too much has been made of teething as a cause of convulsions. All observers, however, are agreed that teething is attended by special danger to infants the subjects of rickets, or otherwise enfeebled. In rickets the process of dentition is generally delayed, and may be complicated by severe nervous or intestinal symptoms.

* Taylor, 'Practice of Medicine,' 1904, p. 366.

† Ashby and Wright, 'Diseases of Children,' 1899, p. 532.

Ashby* says that a strong vigorous infant which has been brought up at the breast will cut its teeth one after another without trouble. On the other hand, if the infant is rickety, weakly, or of inherited or neurasthenic tendencies, the period of dentition will be a period of danger, the process of dentition acting rather as the *exciting* than the predisposing cause.

Starr† says that many diseases occurring in infancy were formerly attributed to dentition, but, as the science of pediatrics has been more carefully studied and better understood, one disorder after another has been relegated to its proper etiological class, and teething is now regarded as a purely physiological process unproductive of symptoms.

It may be taken, then, that the deaths attributed to teething are in the large majority of cases due to rickets, and will occur for the most part after the sixth month of life.

(c and d) *Rickets and Laryngismus.*

Laryngismus is here included with rickets for the purpose of etiological consideration, because all observers are agreed that laryngismus occurs almost exclusively in rickety infants. The etiology of rickets, which is essentially a condition of malnutrition, may be considered under three headings: Parental, Dietetic, and Hygienic.

(1) *Parental causes.*—These in the main imply the inheritance of depraved constitution. Ashby‡ in this respect instances syphilis as predisposing to rickets rather than as an essential cause. Starr§ mentions both syphilis and tuberculosis with a like reservation. Weakly and premature infants, and the offspring of hard-working mothers living under unhealthy conditions, would appear to be specially predisposed to rickets.

(2) *Dietetic causes.*—These play most part in the production of rickets, and if coupled with unhygienic conditions, their effect is manifoldly increased. Although rickets is occasionally seen in breast-fed children, especially in cases of over-lactation, it is on the hand-fed that the chief incidence of the disease is found. In such cases the principal cause is the deprivation of fresh milk, and its substitution by unsuitable artificial food, such as farinaceous and proprietary

* Ashby and Wright, *op. cit.*, p. 60.

† Starr, 'Diseases of the Digestive Organs,' 1901, p. 208.

‡ Ashby and Wright, *op. cit.*, p. 198.

§ Starr, *op. cit.*, p. 131.

foods, condensed milk, etc., almost to the total exclusion of fat. Starr* believes that a deficiency of animal fat, and to a less extent that of proteids and salts, is the chief dietetic cause. That improper feeding plays an important part in its production has been shown in the rearing of the young lions at the Zoological Gardens, and in the feeding of puppies and other animals on lean meat. These animals developed rickets, but improved at once when given milk and pounded bones.†

(3) *Hygienic causes*.—Rickets shows a special incidence among infants housed in ill-ventilated, damp, dark, and overcrowded dwellings, such as are only too frequently found in many of the slums of great towns. A want of domestic and personal cleanliness, and an absence of fresh air and sunlight must, therefore, be regarded as potent factors in the production of rickets.

Ashby sums up these various factors as follows: "Hereditary weakness, feebleness of the digestive powers, improper food, breathing vitiated air, exposure to cold and damp, will together, in some instances perhaps singly, produce rickets. Rickets abounds where the lower classes of the population are crowded together in courts and slums, where the mothers, from necessity or choice, are unable to suckle their infants, where fresh milk is dear and of poor quality, and infant life is exposed to the various bad influences which poverty and ignorance are certain to produce."

As regards the age-incidence of rickets both Starr‡ and Ashby§ state that rickets may begin during intra-uterine life. Vincent,|| on the other hand, doubts if any foetal condition exists to which the term rachitis can be legitimately applied. Ashby¶ considers the commonest time for rickets to manifest itself is from the first six months to the end of the second year. Starr** states that usually the initial symptoms are not observed before the seventh month. Vincent†† says the disease is most commonly seen towards the end of the first year, and quotes figures given by Gee,‡‡ from which it appears that of 176 cases occurring under one year of age only 32, or 18 per cent., were under the age of six months.

* Starr, *Ibid*.

† Ashby and Wright, *op. cit.*, p. 198.

‡ Starr, *op. cit.*, p. 131.

§ Ashby and Wright, *op. cit.*, p. 197.

|| Vincent, 'The Nutrition of the Infant,' 1904, p. 246.

¶ Ashby and Wright, *op. cit.*, p. 197.

** Starr, *op. cit.*, p. 131.

†† Vincent. *op. cit.*, p. 249.

‡‡ See 'St. Bartholomew's Hospital Reports,' vol. iv, p. 69.

It may be taken, therefore, that the infantile deaths due to rickets will fall in the age-period six to twelve months.

(e) *Scurvy.*

The infantile deaths ascribed to scurvy in the year 1903 are numerically insignificant, but in view of the importance of the condition in relation to the question of sterilising infant foods it was thought well to include them in the consideration of this group. Starr* says that scurvy may occur in the best or worst hygienic surroundings, and the sole factor which was uniformly present in the reported cases analysed was absence of the quality of freshness in the food. The food was not "live." He classes faulty foods in the order of their potency thus :

(1) Proprietary infant foods administered without the addition of cow's milk.

(2) Proprietary infant foods employed with addition of insufficient cow's milk.

(3) Farinaceous foods (oatmeal, barley, etc.) administered with water alone, or with water and insufficient cow's milk.

(4) Condensed milk and water.

(5) Sterilised milk.

(6) Too dilute milk and cream mixtures.

Barlow, in the 'Bradshaw Lecture' of 1895, defined scurvy as "a constitutional disease due to prolonged improper diet in infants." Tullis† has seen cases arise from the prolonged use of peptonised food, and states that Eustace Smith held that the boiling of milk removes some antiscorbutic property; Kellett Smith‡ believes scurvy is related to insufficient fat in infant dietary; and Rogers§ reported a case in an infant nine months old fed on Mellin's Food. In the majority of instances the disease develops between the age of six months and the end of the second year.||

Having now considered the etiological factors in the production of these causes of death, and having established by the evidence of independent observers their relative age-incidence, quite apart from mortality statistics, it will be of interest to discuss in what degree

* Starr, *op. cit.*, p. 111, *et seq.*

† 'Brit. Med. Journ.,' 1903, vol. i, p. 82.

‡ *Ibid.*, 1901, vol. i, p. 201.

§ *Ibid.*, 1903, vol. ii, p. 1276.

|| Starr, *op. cit.*, p. 111.

it is probable that the official returns overlap or vitiate each other, the object being to read, as it were, behind the medical certificate in order that the true significance of these death rates may be approximately appreciated. And since argument is easier by contrast, the age-periods 0 to 3 months and 6 to 12 months will be selected for this purpose.

(1) *Deaths in the Age-period 0 to 3 Months.*

Of the total infantile deaths ascribed to convulsions 62 per cent. occurred in the first three months of life, 21 per cent. in the second three months, and 17 per cent. in the age-period 6 to 12 months. Of the total infantile deaths ascribed to rickets, the proportions, as one would expect from what is known of the age-incidence of that disease, are relatively inverted. Only the small proportion of 8 per cent. occurred in the first three months of life, 21 per cent. in the second three months, and no less than 71 per cent. in the age-period 6 to 12 months. If, however, instead of considering the infantile deaths definitely ascribed to rickets in the returns of the Registrar-General, the deaths ascribed to teething, laryngismus, and scurvy be included, forming what may provisionally be called the "rickets group," and contrast be made of the ages at which deaths from convulsions and from the "rickets group" occur, something approaching a statistical demonstration of their relative age-incidence will be obtained, and will, of course, be especially trustworthy as regards the age-period 0 to 3 months. Having regard to the etiology of the deaths ascribed to teething and laryngismus their inclusion in the "rickets group" can only render the result the more accurate. Carrying the calculation to the first decimal the following result appears :

Cause of death.	Percentage of total deaths from each cause in different age-periods, 1903 (England and Wales).		
	0-3 months.	3-6 months.	6-12 months.
Convulsions . . .	62·0	20·9	17·1
" Rickets group " . .	3·7	17·2	79·1

The point which I wish to establish, and which I think these figures support, is that if any confusion exist between the certification of convulsions and rickets during the first three months of life it can only do so to a relatively insignificant extent, and cannot vitiate the moral significance of the deaths ascribed to the former; since rickets in this early age period has hardly begun to make its influence felt. Moreover, it will be observed that the percentage in

the "rickets group" under 6 months of age, 20·9, closely approaches the actual relative age-incidence of rickets as determined by the observations of Gee. A healthy infant does not suffer from convulsions unless the stimulus is strong, and one must therefore look for a predisposing as well as an exciting cause. In later age-periods these are only too easily found in rickets as the predisposing cause, and in teething, acute illnesses, or improper food as the exciting causes. In this age-period, however, the rôle of rickets and teething is practically eliminated. To what then must these early infantile convulsions be attributed? Ashby* would look to hereditary influences as largely responsible for early convulsions. He states that the infants of those who have suffered from epilepsy, or who are of a highly nervous disposition, are more especially liable to convulsions in the first few months of life. That is to say, the predisposition to convulsions is inherited. As regards the exciting cause, the initial stage of acute diseases, especially whooping-cough, bronchitis, and pneumonia, will account for some; but as deaths from these causes will mainly be returned under their proper headings the proportion so returned under the heading "convulsions" cannot be a large one.

I do not wish to exaggerate the importance of improper food as a factor in infantile mortality, especially in this early age-period; indeed, it is chiefly in the hope of avoiding any such exaggeration that this somewhat detailed analysis has been considered necessary. But, after making due allowance for the operation of other external causes, one must perforce accept this factor, improper food, pure and simple, as by far the chief exciting cause of convulsions in infants under 3 months of age. When one reflects that 62 per cent. of all infantile deaths from convulsions occur in this age-period it follows that vast numbers of infants are improperly fed from the earliest days of life. That many who escape death in this early age-period succumb to rickets, and other diseases of malnutrition, in later age-periods, the mortality returns leave little room for doubt.

(2) *Deaths in the Age-period 6 to 12 months.*

In considering the etiology of convulsions, it was shown that besides rickets certain other conditions, more especially measles, pneumonia, diarrhœa, and whooping-cough, are attended by convulsions.

Leaving rickets out of account for the moment, the returns of

* Ashby and Wright, *op. cit.*, p. 532.

the Registrar-General do not suggest that these other causes of death are understated, and it is, therefore, fair to assume that deaths from convulsions due to measles, pneumonia, diarrhœa, and whooping-cough will, for the most part, be correctly returned under their respective headings, and that it is only when the cause of the convulsions is less apparent, or for other reasons, that a death will be certified simply as due to convulsions.

On the other hand, the relation between convulsions and rickets is very close, and the Registrar-General's returns do emphatically suggest that rickets as a cause of death is enormously understated. Ashby* believes that in the large majority of children who suffer from convulsions between the age of 6 months and 3 years the signs of rickets are present. Probably, therefore, the great majority of deaths ascribed to convulsions in this age-period are, in fact, due to rickets. Although rickets is only too common a disease, and is a well-recognised cause of convulsions, it would appear that only with reluctance will medical men certify the condition on a death certificate. For example, in 1903, in the age-period 6 to 12 months, 2255 deaths were registered as due to convulsions, but only 444 deaths were definitely ascribed to rickets. If to this number for rickets the deaths ascribed to teething and laryngismus in the same age-period be added the number becomes 2283, but even then the mortality of rickets must be enormously understated. It is well known, for instance, that rickety infants are peculiarly liable to bronchitis, and that in these the disease tends to be fatal, and such deaths will probably appear in the mortality returns as bronchitis, rather than as rickets. The close relation of certain respiratory diseases to rickets is well understood, and it is here merely mentioned parenthetically to indicate that the true extent to which rickets operates in the mortality in this age-period is by no means adequately disclosed by the conditions now under consideration.

There can be but little doubt, therefore, that the deaths included under convulsions, teething, rickets, and laryngismus in this age-period must be regarded in the main as due to rickets, and dependent upon those hereditary, dietetic, and hygienic factors which have already been considered. Of all those factors, improper feeding takes the first place. Moreover, the deaths in this group do not mean merely an *error* in diet, as may conceivably be the case in many of the deaths attributed to diarrhœa, but rather a long-continued course of improper feeding culminating in malnutrition. Nor can it be doubted that many others who escape

* Ashby and Wright, *op. cit.*, p. 532.

death in this age-period enter the later ones handicapped in vitality, and contribute largely to what may be regarded as the "child mortality" (*i.e.* the deaths of children under 5 years of age per 1000 living in that age-period).

A CASE OF CONGENITAL MALFORMATION OF THE ŒSOPHAGUS.

By DAVID DICKIE, M.B., Ch.B.Glas.,

*Late Senior Resident, Western Infirmary, Glasgow; late Senior Resident,
Royal Hospital for Sick Children; Senior House Surgeon, Glasgow
Maternity Hospital.*

MALFORMATIONS of the œsophagus are usually due to congenital atresia, congenital stenosis, congenital diverticula, total absence of the œsophagus, membranous obstruction, and intercommunication with the air-passages. As the cause of this defective condition of the œsophagus has been the subject of much conjecture, and as erroneous explanations have been offered, I deemed the following case worthy of note.

In June, 1905, a male infant, aged 3 days, was admitted to the Royal Hospital for Sick Children, Glasgow, with the following history: The child was put to the breast soon after birth, but on sucking for a short time the face became cyanosed, and it immediately vomited through the mouth and nostrils the milk which it had swallowed. The material ejected was white and frothy, and during its ejection the child seemed to be on the point of death from suffocation. This happened at every attempt to feed the baby.

The bowels moved well on the evening of birth, and the child passed urine on several occasions without any difficulty.

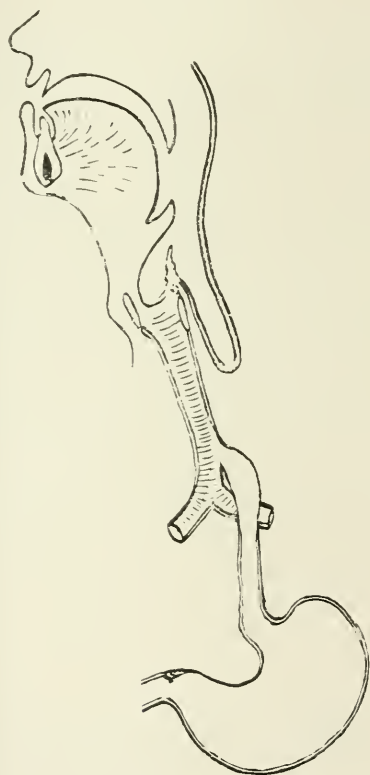
On admission the child was found to be well developed, and weighed $8\frac{1}{2}$ lb. Several attempts were made to feed the baby by means of a spoon, but always with the same result. The child seemed to swallow quite easily, but in a minute the milk was returned through the mouth and nose, with dyspnœa supervening upon the return of the milk. The quantity ejected was found to be equal to the quantity given.

The mouth and upper part of the pharynx were examined without detecting any abnormality, but under an anæsthetic a small

gum-elastic catheter was stopped about 4 c.m. from the alveolar border.

A laparotomy was performed and the stomach was found to be enormously dilated, and its walls were extremely thin—almost paper-like. The pylorus was next examined and found quite patent. A simple gastrostomy was then performed. The child bore the operation well, and was fed every two hours by means of a rubber tube passed through the gastrostomy wound.

FIG. 1.



Vomiting occurred during the next twelve hours several times, the ejected material being simply frothy milk and mucus. During a more than ordinarily severe bout of sickness there was a sudden flow of frothy, dark-coloured blood and mucus from the naso-pharynx, and the child died sixteen hours after operation.

A post-mortem examination was made. The mouth, soft palate, and upper part of the pharynx were quite normal.

The upper part of the gullet was exceedingly muscular, and

terminated in a "blind" rounded pouch, practically $\frac{3}{4}$ in. above the level of the tracheal bifurcation. No communication whatever existed between the pouch and the lower part of the gullet.

Dissecting from below the gullet arose from a normal cardiac orifice, and the tube, fairly muscular, was quite patent. It passed, however, into the trachea at a point about $\frac{1}{2}$ in. above the tracheal bifurcation, entering the trachea on its posterior aspect where the tissue is thin and there is no cartilage. The blind end of the upper portion of the œsophagus lay somewhat in front of the lower part.

The thyroid and thymus glands and the main vessels of the neck were normal.

Stomach.—The peritoneum was practically normal. No unabsorbed milk was found in the abdominal cavity. There was a considerable quantity of recent dark, slightly altered blood-clot lying between the stomach and the transverse colon, behind the gastro-colic omentum and nearer the cardiac than the pyloric end of the stomach. On sweeping this away the stomach was seen to be ruptured, a large opening with torn edges existing. The interior of the stomach contained a small quantity of dark blood. The stomach walls were very thin and easily gave way. They seemed to be thinned out from previous great gaseous distension and softened by the action of the gastric juice.

The remaining abdominal and pelvic viscera were quite healthy.

Remarks.—The rarity of congenital malformations of the œsophagus as compared with similar defects in other parts of the gastro-intestinal tract, may be judged from the fact, that MacKenzie ('Diseases of the Throat 1880'), after a careful search through the literature on this subject, extending back to the year 1670, found only sixty-two recorded cases.

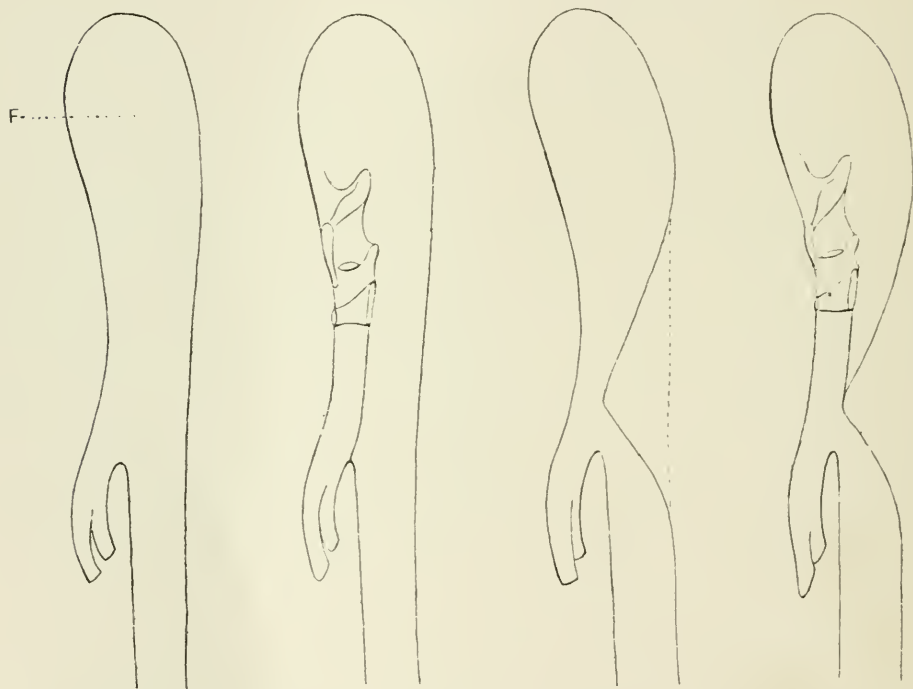
Since his scrutiny, I find only thirteen cases to be added to his list. In attempting to find a solution of this interesting defect, one is tempted to believe that the explanation offered in the case of congenital atresia of the rectum in the male, where the bowel ends in the prostatic urethra, would suffice also in the case of the œsophagus. Such a view is untenable from embryological observations.

His ('Anatomie Menschlichen Embryonen,' vol. 111, 1885) has shown that if a line be drawn from the arch of the lower jaw to the pouch of Rathke, the space lying above and in front of this represents the primitive buccal cavity, while whatsoever lies behind is of hypoblastic origin. Thus the hypothesis of the defect being due to a failure of communication between stomadæum and

mesenteron is wrong. Bland Sutton ('Erasmus Wilson Lectures,' 1889) gave forth this general formula that certain strictures are caused by an unnatural extension of the coalescence by means of which an adjoining channel becomes obsolete. Shattock ('Path. Soc. Trans.,' Lond., 1890) was the first worker to formulate a view which is based on scientific observations, and I am indebted to him for his kind permission to use his diagrams.

Ætiology.—In early fœtal life, the lungs and lower portion of the

FIG. 2.



trachea are formed by an extrusion of the anterior wall of that portion of the mesenteron which ultimately becomes the œsophagus. In the process of the formation of this primary diverticulum, the posterior wall of the midgut is pulled forward, and if the embryological process does not stop at this point but runs riot, so to speak, then the posterior wall of the primitive œsophagus is kinked, and so leads to a secondary closure of the latter (see diagram).

This, then, is the explanation of the first part of the congenital defect; but there still remains to be shown why the upper part of the pharynx and larynx is invariably normal, and secondly, why

there is such a constancy in the position of the œsophago-tracheal fistula.

Shortly put, the reason is as follows: The larynx is formed independently of the primary diverticulum for the lungs by two longitudinal buds from the pharynx, which coalesce. Thus, when the defect in development in the lower part of the œsophagus takes place, and a fistulous opening is formed between the œsophagus and trachea, or one or other, the upper part of the œsophagus or pharynx still goes on developing normally and gives off its buds, and so forms the larynx.

With regard to the second point, namely, the constancy of the situation of the œsophago-tracheal opening, it is always, without exception, the lower part of the œsophagus which enters the lower part of the trachea or bronchi. This seems to me to be a further proof that the larynx and upper part of trachea arise independently from the primary lung diverticulum.

Before concluding, I would draw attention to the dilated condition of the stomach, a condition to which reference has never been made in these cases.

Two explanations present themselves: (*a*) that this extraordinary degree of dilatation and thinness of the stomach is part of the congenital malformation; (*b*) that air has been pumped through the œsophago-tracheal opening into the stomach whenever the child cried, and although a certain quantity of air must of necessity have escaped when the glottis was opened at the end of the cry, at last there resulted an atonic condition of the muscular walls of the stomach, so that no reflux of air took place. This latter view is the one which I feel inclined to respect.

To Mr. R. H. Parry, Surgeon to the Royal Hospital for Sick Children, I am indebted for permission to publish this case, and my best thanks are due to Mr. Shattock, of London, for his permission to use his diagram and advice in his excellent lecture on such defects.

Editorial.

DANGERS OF INFANT MILK DEPÔTS.

INFANT milk depôts have distinct advantages, but as nothing is perfect so they likewise have their drawbacks. The idea of sterilised milk-feeding has become enormously developed since these depôts

were introduced. With the question of milk sterilisation we are not specially concerned at the present moment, although, as everyone knows who has had much experience amongst children, infants fed on sterilised milk often become puny and usually lack energy. They are, moreover, frequent sufferers from scorbutus, and are always anæmic, frequently cross and irritable, and seldom bright and contented. Nor can this be wondered at, seeing that the milk, during the process of sterilisation, undergoes distinct chemical changes, and certainly possesses less value as a nutrient than fresh cows' milk.

The presence of infant milk depôts undoubtedly discourages breast-feeding. Poor women see these depôts, and naturally come to the conclusion that such feeding is superior to mothers' milk. Many women take their infants off the breast for no other reason than that the depôt milk may be substituted. This gross error is encouraged in cases where the depôt is not under the direct supervision of a medical man, as it ought in every case to be. Careful inquiry ought to be made in every case as to whether the mother is able to nurse the child, and if so she should certainly not be supplied with the depôt milk. Unfortunately, most depôts are under the care of nurses or lay-helpers, and so naturally in this respect infant milk depôts are a danger. Then, again, medical men themselves are too apt to suggest sterilised milk in place of breast-feeding because the latter has failed, owing to some quite remediable cause, such as irregular nursing. No medical man should ever sanction artificial feeding until he has assured himself, after careful investigation, that the mother is really unable to nurse her child.

In these days infant-feeding is too much under the control of laymen, nurses, charity-mongers, and other busybodies. Medical men alone are capable of giving advice in matters pertaining to infant-feeding, and where milk depôts cannot be controlled by medical men they should not be established at all. Infant-feeding is not the simple matter that some well-meaning enthusiasts think it to be. It is, on the other hand, extremely difficult in many instances to find a suitable milk mixture for the particular patient, and only a well-trained medical man is able to cope with such difficulties and to prescribe a suitable mixture. No nurse can do this, although she has had years of hospital training; and still less can charitably

mindful ladies and officious aldermen. This is a matter which needs to be driven home at the present time when the profession is being asked to take a back seat in matters relating to infant-feeding. If we, as a body, choose to sit still, quietly contemplating the rise of milk depôts in our midst, supervised by nurses and non-professional persons, then we shall have only ourselves to thank when we find that the question of infant-feeding has passed entirely out of our hands.

What we want in these days is not the education of school teachers on the subject of infant-feeding, but the education of our medical students, many of whom are grossly ignorant of the very rudiments of this important subject. With the establishment of milk depôts there is a risk lest we come to regard these as a solution of the infant-feeding question. They certainly are not, but their presence in our midst seems to imply so. We fear lest medical men in the future will take little or no interest in infant-feeding, but leave it solely in charge of corporations, nurses, and laymen generally. We certainly cannot congratulate ourselves on our zeal as a profession. We have too often "erred and strayed like lost sheep" when considering the vexed question of artificial feeding. Tempted by specious advertisements and now by infant milk depôts, we are rapidly drifting away from the ideal method into paths which are bound to lead us very far astray. Breast-feeding is rapidly becoming a rare thing, largely owing to our own indifference in instructing our patients as to how their offspring ought to be reared. Were we to inquire to-day how many of the infants fed on depôt milk could really have been reared on the breast, we would undoubtedly find a considerable proportion might and would have been but for carelessness or stupidity on the part of the parent in the matter of the proper method to be followed in breast-feeding.

The great danger, however, of infant milk depôts is that so long as they exist we need never expect to have universal perfection in respect to cowsheds and dairies. In other words, the original source of the milk will remain contaminated. This, of course, is going the wrong way round to produce a pure milk supply. What we want is not milk sterilised after it has been got from the cow, but sterilisation of the cow, the dairy worker, the cow-house, and the milk-pail. Milk as it comes from the cow is sterile. Contamination occurs in

the handling of it. Milk depôts claim to remove this risk, but they only encourage its continuance by their very existence. It cannot be denied that if the milk were brought from cow to infant without being soiled in the process there would be no necessity for having the milk sterilised at all. The process of sterilisation is not a good one, because it is unnatural. The further we deviate from nature the less success results. So with infant-feeding also. We must here follow nature as closely as possible, otherwise we must meet with a certain amount of failure rather than success.

In milk depôts where the infants are regularly weighed reliance is placed entirely on the weight in estimating the child's progress or otherwise. Other factors, however, have to be considered as well. A child may readily enough gain weight, but what if he becomes at the same time pale and listless as so many depôt milk-fed babies do? Such infants, moreover, are often constipated and not unusually show evidences of rachitis, not to mention scorbutus and other nutritional diseases. If we wish our coming race to be strong and well-nourished, energetic, bodily and mentally, we shall not achieve this by sterilised milk-feeding. Our grandparents were not so fed, nor were we. Our rising generation must deteriorate if fed on such a poor substitute for mothers' milk. And so by establishing what on the surface appears to be a remedy, we are really gendering disease by encouraging the use of sterilised milk for infant-feeding. The sooner we get back to primitive methods the better. Let us have breast-feeding by all means if possible. We must, as a profession, insist on women suckling their offspring unless they are physically unfit to do so. Failing this, let us cry out for a pure milk supply. Let us insist on having it, and not be content with that miserable make-shift—the infant milk depôt. So long as we do not raise our voice we cannot obtain what we want, but if we sound the alarm we shall eventually secure a reliable milk supply. Then, and only then, will our sons and daughters grow up and flourish, and our generations in years to come will assuredly rise up and call us, the workers of to-day, indeed blessed. To achieve this is well worth the fight. Let us to a man play our part well, and ever bear in mind that infant milk depôts are not an unmixed blessing, but too often a danger in disguise.

Abstracts from Current Literature.

Medicine.

Foreign body in a bronchus ('*Dom. Med. Monthly*,' June, 1906).—**Clayton** saw a boy aged 12 years who for 12 days had suffered from severe cough and fever, the temperature mounting to 104° F. each evening, respirations 60, pulse 120. There was diminished expansion of the right side of the chest, with impaired percussion note all over, but marked dulness below the angle of the scapula. There the breath-sounds were very faint. Over the left lung the breathing was puerile. The leucocyte count was 42,000. The history was that while eating pea-nuts he laughed and choked violently; he seemed well till the evening of the next day, when fever was noticed. A week after the accident he had another violent paroxysmal attack of coughing; other attacks succeeded and were accompanied by hæmoptysis. After these attacks the physical signs altered, there being sometimes stridulous breathing and large râles heard over the affected side of the chest. Bronchoscopy was attempted and failed. The physical signs continued to alter from time to time, after attacks of coughing, but the hectic fever and symptoms continued for about a month, when definite improvement occurred and the child finally recovered. The X rays showed a shadow to the right of the sternum opposite the fourth and fifth ribs anteriorly which was probably an area of infiltration set up by the presence of the foreign body. The writer considers disintegration of the nut took place, which he found occurred if they were soaked in water for a month.

J. PORTER PARKINSON.

On suckling ('*Arch. f. Gyn.*,' t. LXXIV; '*Arch. Gén. de Méd.*,' December 26, 1905, p. 3310).—**Martin** has studied the frequency of the maternal capacity to give suck to her child amongst the 10,178 mothers who have been treated at Stuttgart from 1884 to 1904. He concludes that the generally received opinion to the effect that this capacity is declining is untrue; 88 per cent. of these women could nurse their children completely. Only 1·3 per cent. failed altogether. Statistics are given dealing with the gain in weight of children thus fed as compared with children fed artificially.

ERNEST JONES.

Abnormal development of the genital organs in a boy aged 9 years ('*Réunion Biol. de Nancy*,' February 13, 1906; '*Arch. Gén. de Méd.*,' 1906, p. 829).—**Hanshalter** showed a case with the following peculiarities: The boy was a heredo-syphilitic and mentally defective. His height was a little below the average. His genital organs were as fully developed as in an adult. **Hugh Lett** also showed at the Society for the Study of Disease in Children, in March last, a boy of 4 years, whose penis and testicles were large and resembled those of a young adult. He had frequent erections and nocturnal emissions. For an account of this case, together with an illustration, see '*Reports of the Society for the Study of Disease in Children*,' vol. vi, pp. 200-3, shortly to be published.

ERNEST JONES.

Treponema pallidum in hereditary syphilis ('*Soc. de Biol.*,' February 24, 1906; '*Gaz. des Hôp.*,' February 27, 1906, p. 285).—**Bosc** has found

Schaudinn's treponema in the lung and liver lesions in hereditary syphilis; it exists in the blood, in the ascitic fluid and in the gummatous exudate of the perihepatitis. The organism has a great affinity for epithelium.

ERNEST JONES.

Infantile spastic rigidity (Little's syndrome) (*Thèse de Nancy*, 1905, *Arch. de Neurol.*, March, 1906, vol. xxi, p. 233).—**P. Canel** has considered this subject in great detail and gives a full account of several original observations. The definition of Little's syndrome is taken as "cases of cerebral spastic diplegia, often congenital, or dating from the first few months of life, muscular rigidity being the essential symptom of every spastic diplegia. To the bilaterality and symmetry of the rigidity is added another feature, predominance in the lower limbs." Many types are included under this heading, such as the paraplegic form, generalised form, transitional forms, choreo-athetoid varieties. Although the causative factors are numerous, it is not possible to group the different conditions on a distinct etiological basis. There is absolutely no correspondence between the etiology and the clinical expression of the disease, and very little more between the etiology and the pathological anatomy. The author supports Cestan in his belief that there is no purely spinal variety of the affection, all pyramidal degeneration met with in such cases being secondary to the cerebral condition.

ERNEST JONES.

Reflexes in children (*Thèse de Toulouse*, 1905).—**Laurent** made an investigation of the evolution of reflexes in 110 children whose ages ranged from a few hours to three years. He found that tendon reflexes in the upper limb generally exist in the healthy child till the age of three years and then gradually disappear. Wrist clonus was occasionally present in the first three weeks of life apart from any pathological affection. The knee-jerk was much exaggerated until the seventh month, and then gradually diminished. The ankle-jerk was always less active than the knee-jerk. Ankle-clonus was frequent during the first three weeks of life, but very rare later in the healthy child. Babinski's sign was constant during the first six months. From that period till the age of fifteen months it alternated with the normal plantar reflex. After fifteen months it was very rare except pathologically. Until the age of one year it was often accompanied by the fan sign. Total absence or diminution of the cutaneous reflexes in the young child was not rare. They were never exaggerated, but a very great extension of the zones of excitation was present. This extension of the reflexogenous zones tended to disappear between the ninth and fourteenth month. J. D. ROLLESTON.

Enteric fever by direct contagion in children's hospitals (*Thèse de Paris*, 1905).—**Dubus** gives an interesting survey of the literature of "house infection" in enteric fever, and adds four cases of his own that occurred at the Hôpital des Enfants Malades. For enteric to be transmitted by direct contagion the contact must be not only prolonged but repeated. These conditions were realised in Dubus' cases, which were in adjacent beds to enteric patients. The absence of a previous attack and their inability to realise the dangers of touching their enteric neighbours make children more susceptible to infection than adults. The illness for which they were admitted to hospital is also a predisposing cause, inasmuch as it lowers the natural resistance to the typhoid poison. Bed-pans, basins, enema-nozzles, diapers and baths in some instances were proved to have been the source of

an outbreak in a ward. In other cases convalescent patients were infected by helping the nurses in handling the enteric patients and neglecting to wash afterwards. Prophylaxis should consist in isolating enteric children in cubicles or in a special ward and by enforcing careful ablution after any contact with enteric patients.

J. D. ROLLESTON.

A case of pharyngeal diphtheria in an infant aged 4 weeks (*Arch. f. Kinderheil.*, B. 43, Heft 5 and 6, p. 329).—**Leon Bilik**, of Odessa, reports this case, which showed typical diphtheritic patches on the fauces; he at once injected 1500 units of antitoxin. Two days later the membrane had spread and the condition was worse; a further 1500 units were, therefore, injected. The following day there was marked improvement, and on the sixth day from the onset the membrane had disappeared and a good recovery resulted. Bacteriological examination gave a pure culture of Loeffler's bacillus. The case is recorded on account of the rarity of the disease in young infants, and because of the extreme rarity of recoveries. Thus Henoch had never met with a case under the age of four months, and of 3836 cases Baginsky had none in the first month of life. Diphtheria in infants is usually nasal. The disease is very fatal, for Schlichter reports 18 deaths in 19 cases, Riether 23 out of 31, and Hirsch 36 deaths out of 37 infants attacked. The author attributes the successful outcome of his case to the large doses of antitoxin employed.

HAROLD BARWELL.

Typhoid fever (*Med. Press.*, July 4, 1906).—**Regis** draws attention to the value of two signs in the diagnosis of this disease. The one is a marked yellow colouration of the palms of the hands and the soles of the feet, which makes its appearance usually during the first week, more rarely in the course of the second. It is most constant in children, then in women, and lastly in men. It is important without being pathognomonic, as it may be very slight or absent in mild as well as in grave cases. This sign was first described by Philipowicz of Odessa in 1903, and was attributed by him to the intoxication of the organism by the toxins of Eberth's bacillus, which so modifies the cutaneous capillary circulation and leads to hyperæmia of the abdominal viscera that the skin of the palms and soles undergoes a degree of atrophy and allows the subcutaneous layer of fat to show through. Others have explained the phenomenon as a local inflammatory process, or as a local action of the toxins, and others, again, as due to the destruction of the red corpuscles. The second sign is that of J. Bernard, an Austrian. Palpation in the ileo-cæcal region will reveal two or three small swellings of the size of a filbert or an almond, which lie parallel to the longitudinal axis of the colon at a distance of from one half to one inch from each other. They do not become perceptible till the end of the first week, and usually disappear some days later. These tumours have been attributed to hypertrophy of Peyer's patches and inflammation of the mesenteric glands. The latter hypothesis, however, seems inadmissible, as the glands in question are situated in a horizontal direction, whereas the enlargements described are more vertical.

T. R. WHIPHAM.

Persistent ductus arteriosus (*Med. Press.*, May 30, 1906).—In a clinical lecture **G. A. Gibson** emphasises the points on which a diagnosis of this lesion may be made. Two physical signs are characteristic: In the third left intercostal space, close to the sternum, there is on palpation a long thrill following the apical impulse and continuing beyond the recoil of

blood on the semi-lunar cusps, the closure of which may be felt; on auscultation a murmur begins after the commencement of the first sound, but before it ends, and is continued through the systole and second sound into the diastole, when it dies away. The murmur is rough in character and is most intense at or immediately after the second sound, which may be accentuated or doubled in the pulmonary area. There may be no shortness of breath, cyanosis, œdema, enlargement of the heart, or other evidence of circulatory disturbance. The possibility of diagnosis has been doubted, but the author relies on the confirmation afforded by at least one necropsy.

T. R. WHIPHAM.

The frequency of thyroiditis in certain infectious diseases (*La Clin. Infant.*, July, 1906, p. 390).—**M. H. Vincent**, in a communication made to the 'Soc. méd. des Hôpit.', says that thyroiditis may be caused by malaria, diphtheria, scarlatina, mumps, syphilis, and rheumatism, according to the investigations of Roger, Garnier, and others. The author found painful swelling of the lobes of the thyroid eleven times out of seventeen cases of typhoid fever, once in four cases of cerebro-spinal meningitis, terminating in recovery, twice in four cases of secondary syphilis, seven times in fifteen cases of measles, more frequent in severe cases, nine times in nineteen cases of scarlatina, once in nine cases of mumps, twice in two cases of erythema, twice in five cases of acute malarial fever. He also found it in cases of sore throat, erysipelas, gonorrhœal arthritis, pneumonia, etc. It seems to have been absent in benign forms of these diseases, and also in severe forms of typhoid fever; it was absent also in three cases of streptococcic septicæmia—one following a gangrenous erysipelas of the arm in a case of typhoid, the other supervening upon a whitlow, the third in a case of suppurative polyarthritis. It was absent in a case of gangrene following rheumatic nephritis. All these cases proved fatal. These facts seem to show that thyroiditis, like enlarged spleen, is a frequent manifestation during the course of a large number of infectious diseases, and that the thyroid secretion plays a part in the protection of the organism against intoxications of microbic origin, or against the pathogenic agents themselves. This is the only hypothesis which explains the painful swelling of the thyroid in very dissimilar infectious diseases, and its absence in benign as well as severe cases, the defensive reaction being useless in the first case and exhausted and inefficacious in the second. Certain researches support this theory. **R. Turro** ('Soc. de Biol.', March, 1896), found that the normal thyroid juice could digest and quickly dissolve the bacillus anthracis and typhosus. **Lévi** and **Rotschild** (*Idem.*, May, 1906), report a case of relapsing tonsillitis cured after seven months by thyroid treatment, and **Charrin** has noticed the liability to infection in subjects deprived of the thyroid gland.

VINCENT DICKINSON.

Pathology.

The methylene-blue reaction in the urine of healthy and sick children (*La Pediatria*, April, 1906, p. 267).—**A. Jovane** of the Children's Clinic at Naples, calls attention to the assertion made by Russo in the 'Riforma Medica' of May, 1905, namely, that in many cases of typhoid fever and other diseases in which the diazo reaction of Ehrlich was positive, he had invariably obtained an emerald green coloration when four drops of a 1 per cent. solution of methylene-blue were added to 5 c.cm. of the urine. This green coloration Russo called positive, in comparison to a negative

reaction when the urine remained blue, and he declared that it could in all cases be substituted for the diazo reaction. On investigation, Jovane found that in healthy children the diazo reaction and that of methelene-blue were invariably negative, but in the urine of sick children in some cases both reactions were positive, and in others while the diazo reaction was negative, that of methelene-blue was positive. Cousin and Costa ('Presse Médicale,' March 14, 1906) noticed that the methelene-blue reaction is positive only when the urine was cloudy, and Roch, of Geneva ('Semaine Médicale,' 1903, p. 109), suspected that the green coloration was not due to a true chemical combination but was rather a simple superposition of colour. Jovane continuing his investigations found that whenever the urine was turbid, whatever might be the morbid condition which occasioned it, methelene-blue always produced an emerald green coloration whether the diazo reaction was present or not. He also found that in healthy or afebrile urines negative to both reactions, when they were concentrated by heating, the diazo reaction remained negative while the methelene-blue became positive. By adding glucose or uric acid to a urine, no green colour was obtained with methelene-blue, showing that it could not be attributed to the action of reducing substances. It seems, therefore, that this reaction is in relation to the quantity of pigments in the urine, being more evident when they are more abundant and is due to a physical phenomenon, the juxtaposition of colours, and not to any possible chemical combination.

VINCENT DICKINSON.

Researches on the bacteriological flora in the mouths of normal children ('Arch. Gén. de Méd.,' December 19, 1905, No. 51, p. 3201).—**P. Nobecourt** and **A. de Vicarius** contribute an elaborate study on this subject. The mouth of the fœtus is sterile, but after birth various species of micro-organisms soon appear. The authors have compared in this respect eight children under three weeks old with eight children between nine and fourteen months old, at the age of the first dentition. The first children were being fed exclusively at the breast, the second on sterilised milk. Sixteen species of bacteria in all were found, and these fall into four groups: (1) *Bacillus coli communis* and *B. lactis aerogenes*; (2) *Micrococcus candicans*, *M. pyogenes albus*, *M. pyogenes aureus*, *M. pyogenes citreus*; (3) *Streptococcus pyogenes*, *S. compactus*, *S. salivaris*, non-gram-retaining streptococci; (4) *Pneumococcus*, *Micrococcus meningococcoides*, *Sarcina lutea*, *Leptothrix*, *Bacillus subtilis*. A detailed description of these organisms, with their cultural characteristics, is given. The conclusions arrived at are mainly the following: The flora in the second series of cases is far more abundant than in the first. The average number of species found in the second series was 5.6 per cent., as compared with 3.5 per cent. in the first. Some organisms, such as the *Bacillus lactis aerogenes*, are commoner in the first series; others, as the *Bacillus coli communis*, are commoner in the second. The second group of organisms are almost peculiar to the second series, save for *Micrococcus candicans* which is equally common in both. The third group occurs equally in the two series, save for *Streptococcus pyogenes* which is peculiar to the second series. The fourth group are met with only in the second series. These results were constant enough to be valuable.

ERNEST JONES.

A case of meningitis from mixed infection ('L'Echo Méd. du Nord,' May, 1906).—**Diléarde** and **Petit** record the case of an infant of 11 months

breast-fed, with a healthy family and personal history; for eight days the infant had been drowsy, with unequal pupils and some twitching of the face. There was no ear discharge. On admission, March 17, there was rigidity of the back of the neck, strabismus and semi-consciousness, grinding of the teeth. Pulse 100, irregular, respiration irregular. Abdomen retracted, but no general rigidity of limbs. Koenig's sign absent. Fontanelle prominent. Lumbar puncture gave easily 20 c.c. of fluid under high pressure; it was limpid, with excess of lymphocytes and with polynuclear leucocytes containing diplococci staining by Gram's method. The liquid grew no culture on broth and gelatin. The next day the child had opisthotonus of the body. Pulse 124. Much trembling of limbs on attempted movement. There was no vomiting and the child took food well. Lumbar puncture was done on the 19th, 20th, and 21st of the same character as before, the relation of the lymphocytes to the polynuclears being 88 to 12 and 74 to 26 respectively. The child died on the 22nd. At the necropsy there was found caseous broncho-pneumonia in the lungs, of which there had been no evidence during life, caseation of the tracheo-bronchial glands and the mesenteric glands. There was a greenish-yellow exudation at the base of the brain round the vessels of the cranial nerves, especially at the chiasma; tubercles were found in the fissures of Sylvius; some purulent matter along the spinal cord. The authors attribute their inability to cultivate the diplococcus to epidural injections of iodide of potassium which perhaps hindered its growth; they consider it identical with the diplococcus of Weichselbaum, and that the child suffered from a double infection, of which several examples are quoted in French literature.

J. PORTER PARKINSON.

A case of laryngo-typhus (*Arch. Internat. de Laryngol., d'Otol., et de Rhinol.*, May-June, 1906, p. 899).—**B. Weil-Hallé** and **Lemaire-Henri** describe under this name a case of enteric fever in a girl aged 4½ years, where the laryngeal symptoms overshadowed those of the general disease. The case is interesting from several points of view. The child had had measles a fortnight before, and this may explain the increased susceptibility of the larynx. On September 17 the patient had a shivering fit, vomiting and cough, and on the 20th conjunctivitis appeared which became pseudo-membranous; the temperature was about normal until October 13, when it was 100·4° F. and on the 16th it reached 104°; there was hoarseness and some dyspnoea. Rose-spots appeared and a tentative diagnosis of typhoid was made, but Widal's reaction was negative and it was thought possible that the disease was an inflammation of the bronchial glands. On October 13 the dyspnoea rapidly increased, intubation was performed; Widal was now positive. The tube had to be replaced on November 2 and again on the 6th; on the 8th the tube was coughed out and the child died of asphyxia in spite of tracheotomy and artificial respiration. Post mortem the spleen was enormously enlarged, Peyer's patches were very prominent, but only slightly ulcerated; the larynx showed ulceration of the mucous membrane on the inner surface of the ary-epiglottic folds and at the base of the epiglottis. In the middle line in front was a deep ulcer involving the cricoid cartilage, with perichondritis and necrosis; microscopically the lesions showed much small-cell infiltration and organisms exactly resembling Eberth's typhoid bacillus. The authors have been able to find only two other cases where the typhoid bacillus was found in the laryngeal lesions; they also consider that intubation is not suited to the treatment of such cases, but that tracheotomy is to be preferred.

HAROLD BARWELL.

Therapeutics.

Statistical contributions to the morbidity, mortality, and therapeutics of the intestinal catarrhs of the suckling (*'Arch. f. Kinderheilkunde,'* vol. XLII).—**Kobrak** distinguishes between: (1) acute diarrhoea and vomiting characterised by very frequent watery or soup-like motions with vomiting; (2) catarrh of the small intestine with similar character of the motions, but absence of vomiting; and (3) catarrh of the large intestine in which frequent evacuations with much tenesmus obtain, and in which the motion is composed of much mucus, frequently mixed with blood and pus. He points out the extreme importance of prophylaxis by feeding with irreplaceable milk as compared to any therapeutic measures after infection has once taken place. His statistics seem to show that the life of the newborn is especially in danger for the month of August, and that the mortality of one-month-old sucklings who contract any intestinal trouble during this same month is especially high. For the acute stage of gastric and intestinal catarrhs Kobrak advises calomel in small doses ($\frac{1}{12}$ to $\frac{1}{3}$ gr. t.d.s.) with veratrum (Tinct. veratri, 1 m; Spir. dilut. 15 m.s.; every hour 6 to 8 drops till the vomiting and diarrhoea has not recurred for three hours, then every three hours). He speaks very highly of veratrum for obstinate vomiting. For fluid motions in the absence of vomiting he advises a teaspoonful of a 0.2 per cent. solution of protargol every two hours. D. O'C. FINIGAN.

The treatment of whooping-cough (*'La Clin. Infant.,'* April, 1906).—(1) Tincture of *Grindelia robusta* diminishes the intensity and number of the attacks. In infants, three times in the day, twenty drops in a little sweetened water at four-hourly intervals. In older children, fifty drops morning and evening. (2) When the attacks are spasmodic and distressing, the following three times daily is very useful: syrup of tolu 50 grms., syrup of codein 10 grms. Three teaspoonfuls a day for infants, at three-hourly intervals; three dessertspoonfuls for children above the age of two years. (3) Inhalations of oxygen made regularly, fifty to one hundred litres a day, act well in reducing the number of attacks; young children can be made to breathe the gas during sleep. Children should be sent out in fine weather unless they are febrile. VINCENT DICKINSON.

Treatment and cure of intractable vomiting of breast-fed infants by sterilised milk and citrate of soda (*'La Clin. Infant.,'* July, 1906, p. 410).—**M. G. Variot**, in a communication to the *'Soc. m d. des H p.,'* says that the causes of this kind of vomiting are numerous, and are as yet imperfectly known; it forms, for instance, an essential part in the clinical picture of congenital stricture of the pylorus, but this singular lesion is rare and exceptional, while intractable vomiting is far from being so. For the last two years citrate of soda has been employed in these cases with unparalleled success. In simple cases the administration before each feed of a tablespoonful of the following solution is sufficient to stop the vomiting in twenty-four to forty-eight hours:

Distilled water	250 grammes.
Citrate of soda, freshly prepared	5 „
Simple syrup	50 „

This disappearance of vomiting is effected without changing the milk in

breast-fed infants, but in some obstinate cases this may be necessary, or among the poor, by substituting sterilised milk. Three typical cases are described in detail. Analysis of the woman's milk vomited by the infants being negative, it is presumable that it contained toxic substances, which provoke by reflex action a hyperexcitability of the muscular coats of the stomach. A number of observations on the atrophy of breast-fed infants are in favour of the toxicity of certain milks, either that they cause the vomiting or are physiologically useless and cannot furnish material for growth. Toxines seem to be contained in the milk in infinitesimal quantities without the possibility of their being detected chemically. As Schloesing says, "What is most important in the composition of milk is probably what we do not yet know." But in spite of the meagreness of scientific data great progress has been made in the treatment of these cases by the introduction of citrate of soda.

VINCENT DICKINSON.

Salt-free diet in scarlet fever ('*Rev. Mens. des Mal. de l'Enf.*, April, 1906).—**Pater** in a preliminary report advocates a varied but absolutely salt-free diet instead of the usual strict milk diet as soon as the initial fever has subsided. A salt-free diet has been proved beneficial in cases of nephritis, and it appears to have a distinct prophylactic value against the nephritis following scarlet fever. The diet consists of bread, rice, purée of potatoes, eggs, butter, light desserts and milk (all without salt). It can be given without danger, and in cases where there was an initial febrile albuminuria, this disappeared at once. This regimen by strengthening the patient shortens the period of convalescence, and renders the patient better able to withstand secondary infections and complications.

T. R. WHIPHAM.

Enuresis nocturna treated by Cathelin's injections ("Algunas consideraciones sobre el tratamiento de la enuresis nocturna; inyecciones de Cathelin") ('*La Semana Medica*, April 26, 1906).—**A. Zubizaretta**.—Suggestion is often a factor in treatment. Zubizaretta had once four cases in his ward. In the presence of all the other children a lumbar puncture was performed on one child, who screamed terribly when the needle was inserted. For several nights there was no enuresis amongst any of the children. Cathelin's method was tried in twelve non-selected cases. The epidural injections were made strictly as that author advised. A syringe of 5 c.c. with needle of 6 cms. was used, the genupectoral position was adopted, and the fluid introduced slowly. The fluid injected was first a 7 per mil. solution of NaCl, followed by a 1 per cent. solution of cocaine. An injection was given every third day. In three cases there was an improvement. In three cases the result was doubtful. In six cases no improvement at all. Author considers this treatment deserves to fall into the same oblivion as has befallen that by belladonna, bromides, faradism, etc. The rational treatment must have an etiological basis. Some cases result from a hypertonic, others from a hypotonic bladder; others again from hyperæsthesia of the sphincter, and other groups again from hypo-æsthesia, irritability of the mucous membrane, etc. The writer concludes that all specifics must be looked upon with suspicion; the advantage to children would be enormous if clinicians, instead of seeking a remedy, would teach us how to clearly differentiate the various causes of the ailment.

M. D. EDER.

Otology, Laryngology and Rhinology.

Thyrotomy and multiple laryngeal papillomata in children (*Lyons Méd., February 11, 1906, p. 253.*)—**M. Bérard** considers that it is not yet settled what these growths are histologically, nor what should be the principles of treatment. He gives an account of the opinions which have been expressed in the last ten years on the subject of treatment, the methods of which are tracheotomy, with and without thyrotomy, and endolaryngeal operations with the laryngoscopic mirror and, more recently, by Killian's direct method. Bérard describes the case of a boy aged 9 years who had papillomata of the cords and anterior commissure, the symptoms, which had lasted for three years, being hoarseness and nocturnal attacks of dyspnoea. He performed an immediate thyrotomy without preliminary tracheotomy; the wound healed by first intention and the voice, at first hoarse, steadily improved until after three years he can now sing a little. These papillomata appear to be almost always of an inflammatory nature, and in this case the intense small-cell infiltration and the epithelioid character of certain groups of cells arouse the suspicion of a tuberculous origin. Thyrotomy without tracheotomy was in this case devoid of danger, and the author considers that many operators have exaggerated the risks of this operation; the dangers of bronchial and pulmonary complications are less than after frequent manipulations through the narrow natural orifice, and damage to the voice can be prevented by careful incision and suturing. Killian's direct method has a great advantage, that it can be repeated if the growths recur, and will probably be the method of the future, but a certain number of cases will remain for external operation, especially if obstruction is present, and for these immediate thyrotomy is recommended.

HAROLD BARWELL.

Scarlatinal otitis (*Amer. Journ. of Med. Sci.*)—**Sprague** shows that otitis is the most frequent, and perhaps the most serious, complication of scarlet fever, occurring as it does in three to nine per cent. of cases, and of these about half are bilateral. Clinically there are three forms: (1) *Acute serous*, which appears about the time of the eruption or within the first ten days, or while the prodromal pharyngitis is active. The external meatus is somewhat red and swollen, and the tympanum may be congested and bulging. Probably most of these simple cases become secondarily infected and continue on into the purulent form. (2) *Acute suppurative*, occurring usually about the second week and accompanied in some cases by evidence of cerebral irritation. The canal is scaly, thickly coated at its entrance with wax, and often swollen; the drum is oedematous and inflamed, and bulges markedly even after perforation has taken place. (3) *Acute necrotic*, sometimes called the diphtheritic form, though the Klebs-Loeffler bacillus is not found. The tympanum and middle ear are destroyed in the course of a few days, and even the internal ear is involved, causing a total destruction of hearing. In other cases the infection may damage the auditory and facial nerves, and lead on to meningitis and death. The appearances are those of an intense suppurative form with a membranous deposit on the drum, if the case is seen early, or in the middle ear. The fœtid odour of necrosis is also characteristic. The cause of the otitis is generally a streptococcal infection, which frequently becomes a mixed one in a week. The milder forms may arise by way of the Eustachian tube, but the severe are probably

hæmatogenous. Prompt treatment materially affects the prognosis, but the presence of adenoids and enlarged tonsils is of bad import. Treatment is surgical and antiseptic. With perforation in the serous form the ear should be swabbed out and *not* syringed, so as to avoid the possibility of a secondary infection; in the case of suppuration frequent syringing should be employed. Irrigation of the throat and nose is not recommended, as infection may be washed up the Eustachian tube to the middle ear. In the event of mastoid inflammation the author prefers to wait, unless the indications are urgent, until desquamation is complete, as he finds that otherwise repair is extremely slow and that absorption from the wound may take place. An important point is that the discharge from a scarlatinal otitis appears to be a means of spreading infection. The quarantine of such cases should be prolonged in consequence.

T. R. WHIPHAM.

Mastoiditis in infants (*'Med. Record,' March 10, 1906*).—According to **Oppenheimer** an unrecognised purulent inflammation of the antrum in many cases brings about a fatal termination, which is ascribed to other causes. A purulent otitis has a far greater constitutional influence in a child than in an adult, and death may occur before a discharge has taken place, or when it is very scanty. Hence the aural affection is liable to be entirely overlooked. Death is usually due to septicæmia, though it may also occur as the result of a secondary meningitis. The child usually has some digestive disturbance and is wasted: it is restless, cries, and rubs the back of its head on the pillow. The temperature is high and remittent. The head is often hung towards the affected side, and vomiting, convulsions, and even coma may ensue. Enlargement of the glands and pain in the mastoid region are present, and when the collection of pus under the skin is extensive pressure in this region or over the tissues of the neck will often cause a flow of pus from the external auditory meatus. The author consequently advises a proper examination of the ear in all cases of feverish infants, whatever may be the nature of the infection present.

T. R. WHIPHAM.

Cyst of the pharyngeal tonsil (*'Laryngoscope,' December, 1905*).—**W. Wesley Carter** reports a case of this rare affection in a child, aged 7 years. A mass the size of a walnut was felt on digital examination, smoother and more elastic than the ordinary adenoid vegetation. On removal it proved to be a cyst lined with epithelium much infiltrated with round cells: the wall was composed of typical lymphoid tissue. The pharyngeal bursa, met with fairly often, is not a true cyst, but the author considers it to be a cavity of inflammatory origin.

HAROLD BARWELL.

Case of foreign body removed from the right bronchus (*'Laryngoscope,' December, 1905*).—**C. A. Elsburg** relates the case of a child, aged 4 years, in which a large-headed pin had been aspirated four days before. It was localised by the X-rays and removed under chloroform by means of Killian's tube introduced through an incision into the trachea. The cannula was removed after a week and the child recovered. There is no doubt that Killian's method affords a comparatively easy way of treating these otherwise most difficult and serious cases.

HAROLD BARWELL.

Adenoids in early infancy (*'Rev. Mens. des Mal. de l'Enf.,' January, 1906*).—**E. J. Moure** maintains that adenoids are often overlooked at this age; earache and deafness are hard to determine, the obstruction varies from

time to time, and the cases are usually diagnosed as chronic coryza. Occasionally on crying, or even during sleep, the child may make a croaking sound like that of a frog. The diagnosis is easy if it is remembered that chronic coryza is in reality rare at this age. The author does not hesitate to operate as early as fifteen to twenty days after birth if the obstruction interferes with nursing, otherwise one can wait till the eighth or twelfth month. Cases should not be operated on during an attack of inflammation. One should arrange to see the patients again at the age of five or six, for there may be recurrence after operations at this early age, though it is extremely rare after operations in later childhood; it is, therefore, wise only to operate in infancy when the obstruction is doing harm.

HAROLD BARWELL.

Case of diphtheria of larynx, pharynx, nose, conjunctivæ, left ear, and auditory meatus (*Revue hebdominale de Laryngologie*, April 7, 1906).—T. Bobone reports a case occurring in a child, aged 3 years, in whom all these regions were affected. Recovery rapidly followed the injection of antitoxin and the local application of various antiseptics. The otorrhœa persisted, and was finally cured by the radical mastoid operation.

HAROLD BARWELL.

Surgery.

Trachoma among school-boys in Madras (*The Antiseptic*, March, 1906).—Trachoma is endemic in Madras; it is said to have originated in Egypt and introduced into Europe by Napoleon's soldiers on their return after the invasion of Egypt. The trachoma in Madras appears to be a home-made article. It is distinct from follicular conjunctivitis, which is a hypertrophy of the adenoid tissue present in the retrotarsal fold of the conjunctiva, and occurs in children who have other adenoid hyperplasias, such as adenoids and enlarged tonsils. Follicular conjunctivitis occurs chiefly in the lower eyelid and is never followed by cicatrisation and contraction, while trachoma occurs usually in the upper eyelid and causes cicatrisation, leading frequently to entropion and often to pannus. The site of the lesion in trachoma is in the palpebral conjunctiva, and the lesions are scattered instead of being arranged in rows, as in follicular conjunctivitis. It is very prevalent in school-boys and college students, helped by overcrowding and insanitary surroundings, being very common in the poorer classes of the community. The spread is said by some to be due to direct contact; others hold it is spread by flies or by air of ill-ventilated rooms; anyhow, it is undoubtedly contagious. It is most prevalent in low, marshy districts. The spread should be limited by careful examination of the eyes of school-children and isolation of the infected persons.

J. PORTER PARKINSON.

Prognosis of tetanus in children (*Arch. Gén. de Méd.*, October 3, 1905, p. 2525).—Flesch points out that the prognosis of this affection in children is much better than in adults; tetanus in the new-born, on the contrary, is far graver than in either, though not invariably fatal as is sometimes stated. The mortality in children has fallen from 40 to 50 per cent. to 15 to 20 per cent., thanks to serotherapy.

ERNEST JONES.

Post-abortion metritis in a child, aged 11 years (*Arch. Gén. de Méd.*, October 17, 1905, p. 2664).—**Schuetze** says that in the past 150 years only ten instances have been reported of pregnancy occurring below the age of fourteen. In the present case pregnancy was interrupted by a miscarriage, which was followed by metritis. ERNEST JONES.

Pseudo-coxalgia in anal fissure in children (*La Presse Médicale*, March, 1906, No. 25, p. 197, and *Jahrb. f. Kinderheilk.*, 1906, vol. xiii, p. 187).—**M. Svehla** shows that these fissures and excoriations are capable of producing symptoms similar to those of early coxalgia. For example, a child, aged 3 years, usually constipated but without hereditary antecedents, complained for three days of pains in the right foot. He would neither walk nor hold himself upright, stating that in this position his hip hurt him. Examination gave a negative result, but on making him walk it was noticed that he limped and dragged his right leg and avoided leaning upon it. The limb was not painful anywhere on palpation, the joints were free, and all movements effected with ease. Exploration of the anus discovered that the ano-rectal mucous membrane was red and swollen, and the sphincter contracted powerfully with pain round the exploring finger. Laxatives, sitz baths, and cocainised vaseline were prescribed. Eight days later there was no trace of inflammation and the lameness had disappeared. Another child, aged 7 years, had pain on walking, immobility of the right leg, the hip raised, and compensatory scoliosis of the lumbar spine; movement of the coxo-femoral joint was painful, and percussion on the heel and on the great trochanter gave rise to pain in the hip. A similar condition to the previous case was found at the anus and cure resulted from the same kind of treatment. The twelve cases published by M. Svehla call for an explanation of the mechanism by which such symptoms are produced. These lesions are usually very painful, the child instinctively seeks a position of ease, and to avoid the rubbing together of the nates flexes one of his lower limbs, with adduction and internal rotation, so as to separate them. Blows on the heel and trochanter indirectly induce this painful rubbing of the nates, and the child, who does not accurately localise his sensations, refers the pain, not to the anal region, but to the hip. In children the anal region should be explored in all cases of difficult diagnosis of this kind.

VINCENT DICKINSON.

The operative treatment of laryngeal diphtheria in infants (*Rousski Vrach*, January 7, 1906).—**V. Moltchanov** states that diphtheria is relatively rare in infants, amounting to only 4 per cent. of the total number of cases, but that the mortality is very high, reaching 53 per cent. in children below twelve months of age. The disadvantages of intubation in infancy are that it interferes with feeding, that the tube often becomes blocked in consequence of the slight development of the muscle of expiration, and that the tube is difficult to introduce owing to the small size of the larynx. Nevertheless, the author prefers intubation, which has been practised at the hospital in Moscow since 1895, as much superior to tracheotomy for young infants, and he finds that accidents result from intubation no more frequently than in older children. HAROLD BARWELL.

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PNEUMOCOCCAL PERITONITIS.

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Charing Cross Hospital.*

To Bozzolo is given the credit of publishing the first case of pneumococcal peritonitis, in 1885. This was a case of pleurisy and peritonitis, and from the exudate Bozzolo isolated the pneumococcus. During the following years several isolated cases were recorded by different observers. Nélaton in 1890 performed the first operation for pneumococcal peritonitis without success in a woman aged 32 years. Sevestre in the same year operated upon a successful case of a child. Cassaet in 1896 recorded a study of twenty cases collected from the literature. Brun in 1897, and Grancher and Comby in the same year, wrote upon the subject, paying especial attention to the disease in children, giving an account of the age and sex incidence, the course and symptomatology of the disease, and maintained that the prognosis after laparotomy was relatively favourable. Michaut, in 1901, in his monograph collected thirty-three cases, eight of which

had not been recorded previously. Jensen in 1903 published a very interesting paper on pneumococcal peritonitis, giving a most concise study of the subject. Mathews has recorded five cases from his own experience and given a brief summary. Lenormant and Lucène in an interesting article have added to our knowledge of the subject. These are some of the more important papers on the subject of pneumococcal peritonitis. They are by no means all. The literature on the subject is now extensive; cases are recorded from time to time showing the disease is by no means rare.

MODES OF INFECTION.

How does the pneumococcus reach the peritoneum? There appears to be more than one path.

There is one case on record, which is quoted by Jensen, showing a direct peritoneal inoculation. Following a radical cure for inguinal hernia acute fibrinous peritonitis developed. A pure culture of the pneumococcus was obtained from the peritoneal exudate. This appears to be the only illustration of this method of infection, an accident so rare as to be disregarded. The channels by which the pneumococcus reaches the peritoneum may be: (1) *by direct spread from the pleura*, (2) *through the blood*, (3) *from the gastro-intestinal canal*, (4) *from the genital organs in the female*. Something may be said in favour of each of these modes of infection, and it seems clear that the peritoneum becomes infected in different ways in different cases:

(1) *By direct spread from the pleura*—that is, the peritonitis is a secondary complication of pneumococcal pneumonia or pneumococcal pleurisy. Pneumococcal peritonitis may be either primary or secondary; but it appears more often primary than secondary. By a primary peritonitis is understood a condition in which the peritonitis is the sole or predominating evidence of the pneumococcal infection. In seventy-four cases collected by Lenormant and Lucène forty-seven were examples of primary peritonitis, and this primary peritonitis is often an encysted peritonitis (thirty-four times in forty-seven cases). Jensen says that peritonitis complicating pneumonia is rarer in children than in adults. In fifty-eight cases of pneumococcal peritonitis in children only seven were a complication of pneumonia. The absorption from the pleura has been shown experimentally to be most marked in the mediastinal and costal pleura, and is practically nothing in the diaphragmatic pleura. The lymphatic flow

through the diaphragm is from the peritoneal to the pleural aspect. A lymphatic spread of the pneumococcus from the chest to the abdomen implies, therefore, a flow of the lymph-current contrary to normal. This hypothesis is rejected therefore by some partly for this reason and partly because in the encysted secondary peritonitis the inflammation is at some distance from the diaphragm; it is often below the umbilical zone. From the observations and experiments of Burckhardt it is not necessary to consider the lymphatics in the trans-diaphragmatic spread of infections from the chest to the abdomen. Burckhardt examined microscopically the diaphragm of a woman who had died from purulent right-sided pneumococcal pleurisy and general peritonitis. He found considerable thickenings of the muscular and tendinous portions of the diaphragm. These thickenings were due to the deposit of false membranes upon the pleural surface and to cellular infiltration in the tissues. The pleural endothelium had disappeared, the subpleural tissue was thickened and contained numerous round cells, the muscular and tendinous tissue showed inflammatory changes; the inflammation reached the abdominal surface of the diaphragm, which was denuded of its endothelium. Amongst all the tissues were disseminated diplococci in continuous columns from pleura to peritoneum. Burckhardt examined also seven other subjects which had succumbed to a pneumonia or pleurisy. Two of these were complicated with peritonitis (one an infection with staphylococcus and one with pneumococcus). He found in these identical changes: passage of micro-organisms in continuous series from pleura to peritoneum. In the cases where the peritoneum was healthy the cocci were found in abundance in the subserous tissue, but were not seen in the deeper layers and had not reached the peritoneum. It seems certain, therefore, that the peritoneum may become involved secondary to the pleura. Looking at the clinical aspect from the figures given above, it is seen how comparatively infrequently is the peritonitis secondary to a pneumonia, and particularly is this so in children. It is noted by some observers that the lesions in secondary peritonitis are more marked in the peritoneum of the upper abdomen than elsewhere, and particularly is the peritoneum covering the liver involved. Even when the encysted collection is at some distance from the diaphragm it is suggested that a focus may exist in the latter region and a second encysted collection arise by infection from a smaller and unnoticed subdiaphragmatic abscess. As a further argument against this trans-diaphragmatic infection may be advanced the extreme rarity of peritonitis secondary to pulmonary disease. Pneumonia and

pneumococcal pleurisy, extremely common in children, are most rarely complicated by pneumococcal peritonitis.

In a considerable number of cases of pneumonia and pleurisy which have been under treatment in Charing Cross Hospital and the Evelina Hospital for Children during the past three years (it must be understood that all fatal cases were not submitted to post-mortem examination), I have not succeeded in obtaining a single case of pneumococcal peritonitis, with one possible exception. This was a child under my care with diffuse pneumococcal peritonitis, with pulmonary signs, but an autopsy was not performed. My other two cases were the primary encysted type and the acute septic form. This may be explained, perhaps, by the relative virulence of the organism. Burckhardt has experimented in this direction. By injecting various cultures into the pleura, in those of slight virulence no change was observed in the diaphragm. As the virulence was increased and the injection was preceded by an intra-pleural irritant, so the diaphragm was involved, and the peritoneum became infected. The destruction of the endothelium seems to play an important rôle in this trans-diaphragmatic propagation of micro-organisms. Lenormant and Lucène are of the opinion that in the great majority of cases of pneumococcal peritonitis secondary to pneumonia the infection is directly through the diaphragm. Be this as it may, this method of peritoneal infection cannot be common, and must be particularly infrequent in children. That it can occur there is no doubt. It is equally certain in my mind, from the perusal of the literature on the subject, that it is unusual, and particularly so in children.

(2) *Through the blood.*—Michaut is a strong supporter of this method of infection. The pneumococcus is constantly found in the mouth and may become pathogenic, producing middle-ear disease, angina, etc., and from such foci the organism may spread to the peritoneum through the blood. In peritonitis secondary to a central pneumonia the blood may be the path of infection. Michaut explained all cases in this way. Peritonitis is rare as a complication of pneumonia. The relative virulence of the organisms may be responsible for this. The frequency with which the pneumococcus is found in the blood in patients the subject of pneumonia it is difficult to say. A routine examination is necessary. Some work has been done on this subject. Jensen quotes authors on the subject, showing that the pneumococcus has been found in the blood in a very considerable percentage of cases of those suffering from pneumonia. Jensen himself, in twenty cases, demonstrated the pneumococcus in

the blood, and confirmed it by injection into mice. He has found it in the blood, also, in patients after the crisis of the pneumonia, and this is a possible explanation of the occurrence of peritonitis following and not during an attack of pneumonia. There is no doubt that the blood in pneumonic patients may contain pneumococci, but that the peritoneum may become involved by this mode is not quite so readily understood, nor has it been satisfactorily demonstrated. There is no convincing evidence why the peritoneum should be thus involved. Theoretically it is possible. Some previous peritoneal injury or disease may help to explain it, but such explanation is wanting. This method of infection remains purely theoretical.

(3) *From the gastro-intestinal canal.*—The pneumococcus is found constantly in the mouth. It is generally said that it is killed by acids, and hence is destroyed in the stomach. But it has been seen growing in acid media. If it can exist for a short time in the stomach, and pass through this organ alive, it may become virulent in the intestine. In fact, the pneumococcus has been found in association with various pathological conditions in the intestine. Dieulafoy (quoted by Jensen and Lenormant) found the pneumococcus in ulcerating hæmorrhagic gastritis. Weichselbaum found the pneumococcus in a case of enteritis. Flexner, in two cases of chronic diphtheritic dysentery with chronic pelvic peritonitis, found the pneumococcus in the intestinal walls, and this was regarded as the cause of the peritonitis. Ménétrier and Legroux record a case where, macroscopically, no ulceration of the intestinal wall was visible, but the intestinal walls were thickened and œdematous, and studded with tiny miliary abscesses. The walls were infiltrated with micro-organisms, and from the peritoneum was obtained a pure culture of the pneumococcus. Jensen collected twenty cases, in eleven of which he considers the intestinal canal was the starting-point of the peritoneal infection. In three patients suffering from perforated gastric ulcer the pneumococcus was found in the exudate, in two of these cases at the autopsy and in one case after operation. In two cases was an encapsuled abscess, which was found to contain at operation gas and the pneumococcus in pure culture. One of these had the symptoms of a perforated gastric ulcer. In the sixth case was a subphrenic abscess, apparently from the smaller curvature of the stomach. In one patient was an ulcer of the appendix. In a child, aged 2 months, suffering from diffuse fibrino-purulent peritonitis and membranous enteritis, the pneumococcus was present in pure culture, and was found also in the intestinal contents. In the ninth

case the infection was from ulceration in the transverse colon. In the case of a child were many perforations in the intestine. In the eleventh case tuberculous ulceration was present in the intestine, and Jensen regards this as the means of invasion to the peritoneum of the pneumococcus. Jensen has demonstrated the pneumococcus in the fæces in two cases—in one case of a man suffering from croupous pneumonia, and the second case of a child suffering from pneumococcal peritonitis. In connection with this it is interesting to note some works upon the bacteriology of appendicitis. Krogius (quoted by Jensen and Lenormant), in forty cases of appendicitis, found the pneumococcus twenty-one times, and in one case in pure culture. Jensen has found the pneumococcus in twenty cases of appendicitis. How many cases he examined he does not say. He never found it in pure culture, but always in association with other organisms. Kelly reports 204 cases of appendicitis, and never found the pneumococcus. Lanz found this organism three times in 138 cases. In thirty-two cases of local suppuration around the appendix, or diffuse peritonitis arising from this organ, the pus of which I have had examined bacteriologically, the pneumococcus was only found once. The figures of Krogius and Jensen show a far larger percentage of cases in which the pneumococcus was present than those of all other observers. A case is recorded of a child in which the pneumococcus was found in an appendix removed five months after the evacuation of an encysted pneumococcal abscess. Signs of gastro-enteritis are so frequent in pneumococcal peritonitis as to be an almost constant symptom and of considerable value in the diagnosis. These may appear a few hours earlier or at the same time as the symptoms of peritonitis, or a day or two later. This is very suggestive of a gastro-intestinal infection, and from this source the peritoneum may become involved. The pneumococcal peritonitis is much more frequent in the child than in the adult; the relative frequency of intestinal disorders in children may possibly explain this, but it is no explanation of the well-known fact that girls are much more frequently affected than boys. The intestinal path of infection of the peritoneum seems a very probable one in a considerable proportion of cases; it is much more satisfactory than assuming a blood infection. A more critical and extensive bacteriological examination of the fæces and a more careful microscopical examination of the intestinal walls is required before this source of infection can be given its right place amongst the various modes in which the peritoneum can become infected. Very plausible it appears to be, but too much must not be said in its favour until more work has been done upon the subject.

(4) *From the female genital organs.*—Pneumococcal peritonitis is more frequent in the female than in the male sex. But this greater frequency is seen only in children, and in girls it is much more commonly observed than in boys. In adults both sexes are about equally involved. To account for this greater frequency in girls it has been suggested that the genital organs may be the source. In adults the pneumococcus has been found in association with other organisms in cases of pyosalpinx, endometritis, and vulvitis. This, up to the present, has rarely been recorded. In children the genital organs, as shown by autopsy, have been quite healthy. It is, perhaps, to be regretted that microscopical examinations have not been conducted upon children who have died of pneumococcal peritonitis. No coarse lesions are described, but it is just conceivable that there might be some microscopical changes in the tubes which would account for this greater frequency in girls than in boys. This is a suggestion merely, and arises from the microscopical changes which have been observed in the intestinal walls with comparatively slight naked-eye lesions.

To sum up: pneumococcal peritonitis by direct inoculation must be very rare. Infection by direct continuity from the thoracic viscera across the diaphragm seems certainly to account for some cases. This appears to be less frequent than might be thought. In some cases, as described by Bryant, Stoops, and others, the pulmonary involvement appears secondary to that of the peritoneum. Peritonitis secondary to pneumonia is uncommon in children, as shown by the relatively infrequent association of the two conditions. Infection by the blood appears more or less hypothetical. It is well known that the blood in many cases of pneumonia may contain the pneumococcus, but this offers no explanation why the peritoneum should become involved. The genital organs in adults might be responsible for some cases. A case recorded by Stanley Boyd is suggestive of a tubal origin. In children in the present state of our knowledge this does not appear as a source of infection. It may be with a more extended microscopical examination in this direction some light may be thrown upon this greater frequency in girls, a fact which is at present unexplained. Reviewing all the facts, it seems that the intestine will in the future be proved to be responsible for many cases. The work which has been done upon the bacteriology of the appendix, and the cases and experimental work of Jensen and others, seem to indicate that the intestine is by no means an uncommon source of infection. With further microscopical and bacteriological reports we have reason to believe the origin of many cases may be

solved. This source of infection may account for the greater frequency in children than in adults, but it does not, of course, explain why girls are more often affected than boys.

PREDISPOSING CAUSES.

As predisposing causes may be mentioned age and sex. All authors are agreed that pneumococcal peritonitis is much more frequent in children than in adults. Two out of three cases observed by Bryant were in children; the same proportion of cases which I have seen have also been in children. Four consecutive cases recorded by Stoos were in children, and the majority of isolated cases (Ray, Whipple, Nann, and others) have been in children. Michaut concluded that pneumococcal peritonitis was twice as frequent in the child as in the adult. Mathews says it is probably three times as frequent. Lénormant, in a collection of thirty-four cases of the primary encysted form of peritonitis, gives twenty-five of these as occurring in children. The youngest child appears to be one recorded by Netter, a child which died on the fourth day of life. It is comparatively infrequent under two years of age, but several cases in infancy are recorded.

The difference in sex is particularly noticeable in children. In fifty-eight cases in children collected by Jensen, there was a proportion of seven boys to fifty-one girls. Lénormant found the ratio six to thirty-eight. Mathews says it is seven times as frequent in girls. Brun's proportion was eleven girls to three boys. In adults, Lénormant says that man is affected nearly twice as frequently as woman, whilst Mathews says that in adults the sexes are about equally affected.

It sometimes happens that cases of peritonitis occur for which no cause can be assigned, and articles have been written upon the subject of "essential" or "idiopathic" peritonitis. On reading through the reports of some of these cases, one cannot fail to be struck with their resemblance in onset, symptomatology, and course to the peritonitis produced by the pneumococcus. The description of the peritoneal exudate where given is very suggestive. The majority of such cases are reported in children—again, perhaps, a suggestive feature.

SYMPTOMS AND COURSE.

Pneumococcal peritonitis may be *primary* or *secondary* to some other pneumococcal affection which is nearly always pulmonary. In

children the primary is by far the more frequent type, a proportion of something like eight to one. The peritoneal exudate may be *encysted* or *diffused*. The encysted is the more common form. The encysted forms may be secondary to pneumonia. This is unusual. The most frequent form in children is the primary encysted peritonitis.

Primary encysted peritonitis.—The onset of the disease is, in the majority of cases, quite sudden, with acute abdominal pain, vomiting, and fever. The pain varies in intensity, usually it is very severe. It is at first more or less diffused over the whole abdomen, or limited to the lower half of the abdomen. If diffused at the onset, it becomes confined, in the majority of cases, to the lower abdomen. Since the exudate is far more frequently seen in the hypogastric and iliac regions of the abdomen than elsewhere, occasionally the disease sets in less abruptly. The pain may be more marked on one side, and it seems generally to be the right side, and hence its confusion with appendicitis. Vomiting is quite a constant sign at the beginning, as is also an abrupt rise of temperature. In the cases where the temperature has been recorded from the beginning it practically always shows an abrupt rise, a point of importance to remember in the diagnosis. Another frequent, but not absolutely constant, symptom is diarrhœa. This may be present at the onset or be delayed a few hours or days. When it occurs it is persistent, and resists medical treatment. The aspect of the child at the onset and the pulse bear a proportion to the severity of the pain and the height of the temperature. The abdomen at first is little or not at all distended. The severe initial symptoms subside somewhat after about 24–48 hours, the abdominal pain diminishes, the vomiting ceases, and the temperature may become lowered, and the general aspect improves. The fever oscillates, some pain and tenderness are present in the abdomen which becomes distended by meteorism, the diarrhœa persists, the evacuations are soft, fluid, very fetid, may contain mucus and blood, their passage may be associated with colicky pains and tenesmus. The patient during this period may not appear very ill, but during these few days the inflammation is spreading. The abdominal muscles over the site of the inflammation do often not show that rigidity to pressure as in some other forms of peritonitis. The abdomen becomes more and more swollen by the formation of the encapsuled abscess. The abscess generally (very frequently) forms in the hypogastric and the iliac regions, perhaps more to one side. This is generally not evident until about the twelfth or fourteenth day of the illness (this gives an average time obtained by an

analysis of cases). During the period in which the abscess has been evolving a correct diagnosis has not been made. It is not until the abscess is palpable that this can be done. The abdominal swelling is round, tender, and elastic; it is sometimes so well defined as to be confused with a neoplasm—*e. g.* an ovarian cyst. It varies in size. It may be entirely situated below the umbilicus, in the mid-line, or reaching well into one or both iliac fossæ. Sometimes it occupies the greater portion of the abdomen, and even spreads up to the epigastric and hypochondriac regions. The diarrhœa has probably ceased by this time, and often constipation is present. The temperature rises again most likely, but not to any severe extent. It may have fallen nearly to normal before, but hardly ever becomes quite normal. The abdomen becomes marked with dilated veins, the umbilical region becomes distended, reddened, and much thinned out, and eventually gives way with the evacuation of some of the pus. This spontaneous evacuation of the pus at the umbilicus has been recorded several times. Comby records it in a child, aged $2\frac{1}{2}$ years, which had been ill for five weeks. Lecoq records a girl, aged 7 years, who at the eighth week of illness discharged pus from the umbilicus; Brun, a girl admitted into hospital for umbilical fistula, preceded by a typical course of pneumococcal peritonitis, the pneumococcus being found in the discharge; Tapie, a girl aged 22 months, who three months previously had peritonitis, resulting in a discharge of pus from the umbilicus; Ray, a boy aged 3 years, who five weeks previously developed peritonitis—the umbilicus gave way and two quarts of matter came away. Others record examples of this spontaneous evacuation. In Comby's case this was followed two weeks later by discharge of pus from the vagina. Grancher relates a case, probably of pneumococcal origin, where the abscess burst into the vagina and then into the bladder. Laparotomy was eventually performed, and recovery ensued. Jensen refers to two cases where a hernial sac contained pneumococcal pus.

Diffuse peritonitis.—The diffuse form of peritonitis has not such a definite course as has the encysted. In some cases the onset is quite sudden and severe, and the course is that of a diffuse septic peritonitis. Acute abdominal pain, vomiting, fever, diarrhœa, rigidity and distension of the abdomen, and a rapid termination mark these cases. Brun operated unsuccessfully on the second day of the illness in a girl of $5\frac{1}{2}$ years, with the typical symptoms of acute septic peritonitis. I operated upon a case on the third day of the illness with symptoms of acute peritonitis with a fatal result. Bryant's cases were very acute; these were not operated upon. Jensen operated on

a two months child on the second day of the illness, the child died the following day, and diffuse pneumococcal peritonitis was present. Lennander and Krogus have reported cases of diffuse peritonitis of a severe type with operation on the fourth day. Whipple had a fatal case on the fifth day of the illness. These serve as examples of a severe form of diffuse pneumococcal peritonitis, and show how virulent it may be. All cases of diffuse peritonitis are not so virulent. The symptoms in the main are the same, but less intense. Thus Waldo's case (not operated upon) lived a fortnight; one of my cases was operated upon at the end of three weeks and died a few days later. Nanu operated successfully on the tenth, Daxemberger on the eighth, Brun on the thirteenth, and Stoops on the tenth day. The acute cases of diffuse pneumococcal peritonitis seem to run a course similar to a septic peritonitis and terminate fatally in a few days. The less severe cases have usually an abrupt onset, as in the encysted form, and have the same classical symptoms. There then follow some amelioration and later signs of peritonitis—distended, painful, and tender abdomen, vomiting, diarrhoea (sometimes constipation), fever, general intoxication, and death on the tenth or twelfth day, or even later. Only a few cases of recovery after operation for diffuse pneumococcal peritonitis have been recorded.

DIAGNOSIS.

The diagnosis of pneumococcal peritonitis is one of some difficulty. Sometimes it has been diagnosed, but very often it has not. Pneumococcal peritonitis is still one of the uncommon affections of the abdomen. Other conditions with which it may be confounded are the more frequent. Difficulty is generally experienced in recognising it from *typhoid fever*, *appendicitis*, *tuberculous peritonitis*, and other forms of peritonitis.

Typhoid fever.—From typhoid fever it may be distinguished by its abrupt onset (the early vomiting is uncommon in typhoid) and the rapid elevation of temperature at the very beginning of the illness, later by the absence of "spots," and splenic enlargement. The valuable test is the Widal reaction. In one of my patients the case was regarded as typhoid fever; the one point against it was the repeated negative Widal reactions. In some cases of typhoid fever in children the onset is more or less abrupt and vomiting is not perhaps infrequent, the abdomen is generally distended and sensitive and the fever remittent. Such cases bear a strong resemblance to pneumococcal peritonitis, and can only be distinguished by the

positive Widal reaction. Evidence of an encysted or general collection of fluid in the abdomen determines the point in favour of pneumococcal peritonitis.

Appendicitis.—Acute abdominal pain, fever, and vomiting are common to both diseases. If these three symptoms are alone present a differential diagnosis is impossible at the beginning. A point of distinction is the presence of diarrhœa in pneumococcal peritonitis. This, as mentioned in the description of the course of the illness, is a very common symptom in pneumococcal peritonitis. Constipation at the onset of an attack of appendicitis is the rule, but diarrhœa is by no means uncommon. A “pelvic appendicitis” is frequently seen in children, and this is often accompanied by diarrhœa. This is present in about a quarter of my cases of appendicitis in children. But the diarrhœa commences not so early as in pneumococcal peritonitis, and evacuations are not so foul and fœtid. The localisation of the pain in appendicitis is generally said to be over McBurney’s point, but this is by no means always so; it is very often diffused over the whole lower abdomen. The pain may be localised over the right iliac fossa in pneumococcal peritonitis. Muscular rigidity is more marked in appendicitis, but in children it is surprising how this sometimes fails. In the first few days it is seen, therefore, how very similar the two diseases are; at this time the presence of diarrhœa in the pneumococcal infection and the presence generally of muscular rigidity in appendicitis are the main distinguishing features. An early swelling in the iliac fossa, hypogastric region, or in the pelvis, as found on rectal examination, determines the diagnosis of appendicitis. In this connection may be emphasised the importance of making a rectal examination in all cases of acute abdominal disease in children. Only recently I have seen two such cases of acute abdominal disease; in both the symptoms pointed strongly to appendicitis, but in neither was there felt any swelling on abdominal examination. These children suffered from abdominal pain, vomiting, diarrhœa, and an intermittent temperature. Many diagnoses were given, but on simply making a rectal examination the correct diagnosis was evident. Both abscesses were tapped through the rectum and a rapid recovery ensued. Occasionally an appendix abscess may reach large proportions if allowed to, and then these symptoms, together with a fluctuating abdominal tumour, again bear a strong resemblance to pneumococcal peritonitis after an illness of ten or twelve days. Such large appendicular abscesses are not often seen but occasionally are met with. I have had two such cases in children, the appendical origin being proved by the subsequent

removal of a diseased appendix in each case. An appendicular abscess rarely points at the umbilicus, but nevertheless it will do so sometimes; on the other hand, an encysted pneumococcal peritoneal exudate, if allowed to run its course, not infrequently will spontaneously burst through the navel cicatrix.

Appendicitis in children is more frequently than in adults of the type of a perforation into the general peritoneal cavity—a diffuse peritonitis from the beginning. Such cases cannot be distinguished from the acute diffuse pneumococcal peritonitis which clinically run a course similar to any acute perforative peritonitis and terminate fatally in a few days. In some cases of pneumococcal peritonitis the symptoms are less severe and the duration of the illness longer than is usual in diffuse perforative peritonitis, death not occurring until the tenth or twelfth day or later. This is unusual in diffuse peritonitis of appendicular origin. Appendicitis is the commoner disease; pneumococcal peritonitis the less frequent. Many cases of pneumococcal peritonitis have been diagnosed as appendicitis. A history of a previous attack may aid in the diagnosis.

Tuberculous peritonitis.—A case of pneumococcal peritonitis with the typical onset and course will not often be confounded with one of tuberculous peritonitis. The onset is much more acute in the pneumococcal peritonitis, in tuberculous peritonitis more gradual. But the latter disease has been known to arise quite acutely. I have recently seen a baby, aged 3 months, apparently quite healthy, suddenly seized with abdominal pain and vomiting. A hypogastric swelling rapidly formed and in a few days burst through the umbilicus. This was due to the breaking down of a mass of tuberculous mesenteric glands; the streptococcus was also present. Such cases are most unusual. Tuberculous peritonitis has generally an insidious onset, and a child suffering from abdominal pain, vomiting, fever, wasting, and a distended abdomen of a week or two's duration may bear some likeness to pneumococcal peritonitis. The abdomen in the two diseases is different. In tuberculous peritonitis the encysted collection may occur anywhere, and other evidences in the peritoneal cavity which are so well known in this disease may be detected. It seems hardly likely that these two diseases will often be mistaken except in those rare cases of an acute onset of tuberculous peritonitis and those of an insidious onset of pneumococcal peritonitis.

Other forms of peritonitis.—Perforative peritonitis from stomach or intestines, septic peritonitis without perforation, and possibly a gonococcal peritonitis, are conditions which might be mistaken for pneumococcal peritonitis—all rare in children, but examples have

been recorded. The differential diagnosis is made by attention to the previous history, associated lesions, and a careful analysis of the symptoms.

The cardinal points in the diagnosis of the encysted pneumococcal peritonitis are: The sudden onset with abdominal pain, vomiting, fever, and diarrhœa; amelioration of symptoms, persistence of the diarrhœa, and later a hypogastric (usually) swelling. The diagnosis of the diffuse form is not so distinctive.

PROGNOSIS.

The prognosis of the two forms—the encysted and the diffuse—is very different; also is it different in the primary and secondary peritonitis. The common type—the primary encysted—has a relatively very good prognosis after operation, by far the majority of patients recovering. The secondary encysted peritonitis has a less favourable prognosis.

Diffuse pneumococcal peritonitis still has a very high mortality. The very acute cases are almost as fatal as acute perforative peritonitis. The less severe cases have, on a few occasions, recovered after surgical interference. The mortality of this condition will probably be lessened in the future when an earlier diagnosis is made.

TREATMENT.

This may be given in one word—laparotomy. Spontaneous resolution has occurred, but is excessively rare. Rupture of an encysted collection through the umbilicus has resulted in cure, but such a method of cure, of course, must never be relied upon. Indeed, the majority of cases of spontaneous rupture through the navel which have come under observation first with an umbilical fistula do not spontaneously close; further and more complete drainage is necessary. Puncture and aspiration are not sufficient. In the diffuse form the abdomen has generally been opened upon a mistaken diagnosis, and an incision has often been made in the right iliac fossa and the appendix sought for and often removed. A median incision will give the best access, and the case is treated as are other forms of diffuse peritonitis. In the encysted form, if the abdominal wall form the wall of the abscess, as is usual, then the treatment is as simple as opening any superficial abscess; should the abscess be deeper, it must be reached without infecting the general peritoneal cavity. Counter-incisions may be necessary for

drainage, and will vary in position according to the situation of the abscess. Large rubber drainage-tubes are required on account of the thick character of the pus.

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TUBERCULOSIS OF THE MIDDLE EAR IN CHILDREN, WITH SPECIAL REFERENCE TO ITS OCCURRENCE AS A PRIMARY LESION.

By PAUL MATHEWS, M.D.

(Continued from page 442.)

The occurrence of *discharge from the ear* is not infrequently—in the absence of pain—the earliest symptom noticed. This discharge presents many points, apart from its mere chronicity and the absence of associated pain, which may justly raise suspicion that the case is tuberculous. In many cases the discharge is thin and sanious—

especially when caries of the bone has been established. In some cases the discharge is flocculent and thick; in almost all cases it has a most offensive odour, from the presence of putrefactive organisms which gain access subsequently to the perforation of the membrana. If caries is present the discharge has a peculiar odour, which is easily recognised. Not infrequently the discharge is bloodstained, and as this character is generally associated with the existence of caries, it usually persists when it once obtains. In some cases the discharge feels gritty from the presence of small spicules of bone, and a case in which it contained distinct bony sequestra which had been exfoliated has been recorded by Goldstein (10).

It has already been mentioned that ulceration of the tubercles early leads to *perforation of the drum*. This usually occurs early in the condition, and is not infrequently present when the patient is first seen. Owing to the frequent multiplicity of the tubercles it is not infrequent for the perforation to be multiple, as has been described by Politzer (23), Grimmer (6), Milligan (35), etc. By an extension of the ulceration the perforations may coalesce and produce a single perforation of large size; indeed, it is nothing unusual to see the membrana almost entirely destroyed (see Cases 2, 5, 10, 11, 7). In addition to the multiplicity of the perforations their position and appearance may be characteristic. Thus Blake and Buck (46) regard the presence of perforation in the posterior superior quadrant as almost pathognomonic of tuberculosis. The perforations are not usually surrounded by any marked zone of inflammatory redness, for, as has been pointed out, the process is essentially asthenic.

Through the perforations in the drum *granulation-tissue* may be seen. These granulations are more marked than in any other form of otitis media.

In many cases they may be seen to almost completely fill the cavum tympani. They are flabby and unhealthy, and readily bleed. From them sanious, foul-smelling discharge issues. They frequently show evidence of active tuberculosis, and caseous areas have been seen in them by Milligan (35) and Hurd (15).

The early *occurrence of caries* has already been mentioned. In such cases, as the processes commence as an osteomyelitis, it may be very extensive when the patient is first seen; indeed, in some cases the mastoid and petrous portions of the temporal bone may be reduced to a mere shell of bone, as in Cases 5 and 10. Milligan (35) has described a case in which this occurred on both sides, a thin lamina of bone supporting the middle cranial fossa being all that

remained of the temporal bones. In many cases the carious condition is so obvious that it requires little demonstration. Though usually covered by granulation-tissue, this is not always the case, and carious bone may be actually visible through the external meatus. A probe passed carefully into the cavum will frequently reveal the gritty, sugary nature of the bone beneath the easily-torn granulations. In advanced cases a probe so passed may not meet with any obstruction until the apex of the petrosa is reached. Thus in Case 10 a probe could be passed in horizontally for a distance of more than two inches from the external meatus before carious bone was touched. The caries may affect the ossicles, as has been already mentioned, and they may be completely destroyed, or become detached and be discharged. In many cases—particularly where there has been an osteomyelitis of the pars mastoidea—the caries involves the outer wall of the antrum and leads to the formation of a subperiosteal abscess over the mastoid. Should this burst externally a fistulous track may be left.

The production of *facial paralysis* is easily understood when we recollect the course taken by the seventh cranial nerve in traversing the temporal bone. Seeing that the process producing the paralysis is itself usually of a chronic nature, it might be expected that the paralysis itself would occur gradually. This, however, is not always the case; often the paralysis comes on quite suddenly, as in Cases 5, 2. In such cases the paralysis is usually complete, but is not invariably so. Even though the facial nerve be affected in the aqueduct some of its fibres may escape. In a case observed by the writer in an infant of four months old there was slight paresis of the orbicularis palpebrarum on the right side, but no other evidence of facial involvement. Post-mortem examination showed the presence of caries of the right temporal bone, the facial nerve traversing the caries apparently intact. The tuberculous nature of this case could not be demonstrated, and the case is not included in our series, but that a tuberculous caries might similarly produce partial facial paralysis may be accepted as highly probable. The absence of lines in an infant's face sometimes makes it difficult to detect slight degrees of facial paralysis, as it is not manifest during repose. Its presence had not been noticed by the guardian of Case 7, in which it was nearly complete. The involvement of the seventh nerve in the aqueduct also leads, by implication of the fibres supplying the chorda tympani, to impairment of the sense of taste. It is obvious that this symptom is of little value in cases occurring in infancy, though it has been observed by Politzer in adults.

The *labyrinthine symptoms* are important, though not pathognomonic, and their production will be readily understood from the consideration of the pathological processes. Owing to the existence of caries bone-conduction of sound is early impaired. The inner ear is liable to infection, not only by extension of the caries, but also—in an especial degree—by invasion through one or other of the fenestræ. The frequency of the involvement of the stapes predisposes to this. It is stated (35) that perforation of one or other of the fenestræ occurs in 33 per cent. of all cases. The involvement of the internal ear quickly leads to nerve-deafness, which is frequently absolute. The high degree of deafness in tuberculous middle-ear disease has been pointed out by Horne (28) and Milligan (35). The occurrence of nerve-deafness from involvement of the eighth cranial nerve, or cochlea, becomes of grave significance when we recollect that in five of Macewen's cases this was the path by which the meninges were affected.

The last symptom to which attention is drawn—*enlargement of the lymph-glands*—is certainly not the least important. The glands most usually involved are the mastoid, parotid, and retro-pharyngeal. Subsequently the deep glands of the neck become involved, and may form very large masses, as in Cases 1, 2, 7, 10, 3. It is important to note that these glands may be considerably enlarged before the middle-ear condition manifests itself by otorrhœa, facial paralysis, or other symptoms, and, indeed, the presence of large glandular masses in the neck may be the first indication of any departure from health (as in Cases 1, 2).

The early enlargement of glands is the rule in tuberculous cases, and Milligan (35) states that it is rare to see cases without this symptom. According to Jobson Horne (42), the glands are rarely affected in cases when the ear is affected secondarily to other lesions, but their enlargement is a constant feature of primary affections of the ear.

DIAGNOSIS.

In discussing the symptoms it will be seen that these are not peculiar to the condition under consideration. It is important, therefore, that we should endeavour to appreciate the relative value of these symptoms in order that they may enable us to arrive at the diagnosis. Whilst the symptoms are of doubtful value individually, collectively they build up a picture which cannot easily be mistaken. It frequently happens, however, that the picture is not sufficiently

complete until the patient is "the mere despair of surgery," and it is, therefore, necessary to see what symptoms are of special diagnostic significance in order that appropriate steps may be taken to eliminate the disease early in its course.

The multiplicity of perforations, the absence of inflammation surrounding them, and particularly their presence in the posterior superior quadrant—Blake and Buck (46)—have been emphasised as of special importance. In some cases tubercles have actually been seen on the membrane, or, through the membrane, on the internal wall of the *cavum tympani*; and in such cases the diagnosis should be readily made.

The absence of pain is important, for no other middle-ear condition is associated with such extensive destructive changes unaccompanied by pain. Pain is also absent in sarcomatous conditions, and this possibility must be borne in mind though other factors should suffice to distinguish the two conditions.

In no other condition does facial paralysis occur so early or with such frequency. It occurred in 45 per cent. of Milligan's (58) cases, while in his non-tuberculous cases he only observed it in 2 per cent. In the present series it was present in 33 per cent. We may contrast this high percentage with the figures given by Lake (47), who in 658 consecutive cases of suppurative otitis media only encountered facial paralysis in four. The presence of this sign is regarded by Grunert (59) as almost pathognomonic of tuberculosis in cases of chronic otorrhoea.

The character of the discharge, foul and sanious, the early enlargement of the neighbouring glands (in primary cases), and the occurrence of an indolent fistula over the mastoid, are all points which have special significance. In such cases as it can be detected the presence of stapedia mischief has been pointed out by Haike (40) as indicative of a tuberculous condition. The presence of profuse granulations is regarded by Gandier (60) as a suspicious sign.

Jobson Horne (42) emphasises the diagnostic importance of marked loss of hearing-power, and insists on the usual absence of headache, and on the occurrence of hæmorrhages; while Politzer (23) lays stress on the rapidity with which the *membrana* is destroyed, and on the importance of the detection of carious bone on the inner wall of the *cavum*. When upon examination we find the *membrana* almost completely destroyed, the *cavum* filled with unhealthy granulations beneath which gritty bone can be felt, or when carious bone is visible, we cannot but strongly suspect the condition to be of a tuberculous nature, especially if the patient be an infant.

The discovery of the bacillus of tubercle by Koch placed in our hands a method of diagnosis of greater, and even of absolute, certainty. If the condition be one of tuberculosis we should expect to find the specific bacillus in the discharge. This was first done by Eschle (4) in 1883, and has since been done by numerous observers. Nathan affirmed that he was able to detect it in every case, but certainly most observers have been less fortunate, and there are undoubtedly cases in which the bacillus is not present in the discharge.

Since the discovery of the bacillus in the discharge by ordinary microscopic examination depends on its acid-fast staining reactions, it is important that we should realise that numerous other bacilli possess this reaction, which has been shown to be due to the presence of an envelope of a waxy nature surrounding the bacillus.

Of these the best known are *B. lepræ*, *B. smegmæ*, bacillus of Timothy grass, and the butter bacillus. To these must be added others. Wingrave (49) in discussing the question relative to the occurrence of tubercle bacillus in the aural discharge draws up a list of eight bacilli known to have acid-fast properties. This list includes those already mentioned, and also the bacillus of syphilis (Lustgarten), and some bacilli associated with pulmonary gangrene, fœtid bronchitis, and bronchiectasis. It is important to remember that many of these possess characters in which they differ from tubercle bacillus. Thus the *B. smegmæ* is only found in the secretions of the external genitals, and it is easily bleached with alcohol; *B. lepræ* practically never occurs in this country; Lustgarten's bacillus of syphilis is doubtful. The butter bacillus is probably a "grass bacillus" allied to that of Timothy grass.

The acid-fast properties of the bacilli associated with pulmonary gangrene and bronchiectasis have been attributed by Fraenkel (50) to their occurrence in a medium rich in fatty acids and fats produced by putrefactive changes. It will thus be seen that the probability of acid-fast bacilli found in aural discharge being identical with tubercle bacillus is great. In a series of 100 cases examined by Wingrave (49), twenty-four showed the presence of acid-fast bacilli in the discharge, and the inoculation test showed that these were tubercle bacilli in seventeen cases. It is interesting to note that of the remaining seven cases, five were patients suffering from tuberculosis elsewhere.

It has been shown that the acid-fast reaction is due to the presence of a waxy envelope surrounding the bacilli (51). When we recollect that the same reaction is possessed to a high degree by the squames

found in some cases in the middle-ear secretion, and that the secretion of the external ear consists largely of a waxy material, we at once see a possible source of error in relying on the detection of tubercle bacilli by its staining reactions only. It is possible that bacilli which are not normally acid-fast may acquire this property adventitiously as a result of their growth and existence in a medium rich in fatty or waxy bodies. Thus Fraenkel (50) has shown that the bacillus which shows acid-fast properties in the secretions of pulmonary gangrene loses this property when cultivated on media in which fatty bodies do not exist. It is notable, however, that we have never met with acid-fast cocci in the discharge, though any cocci that may be present must be subject to the same conditions and grow in the same waxy medium, and therefore might be expected to acquire this reaction whenever we find that the bacilli have acquired it adventitiously.

In order to obviate, so far as possible, these sources of error, it is advisable that the discharge to be examined be taken from the deepest accessible source, and then only after the cavity has been repeatedly flushed out. Films showing the presence of acid-fast squames should be discarded, for it has been pointed out by Wingrave that particles of these squames when broken up may be mistaken for tubercle bacilli.

In many cases it is possible to obtain scrapings from the granulations, and in them the tubercle bacillus may be found in large numbers. Histological examination of the granulations may show the presence of caseation or giant-cell formation.

While it has been shown that some cases are not tuberculous yet show acid-fast bacilli in the discharge, the method fails in a far larger number of cases through inability to detect tubercle bacilli in cases which are tuberculous. The discovery of the bacilli is nearly always attended with considerable difficulty, and in the majority of cases it is only after prolonged search through many films that they are detected. It is stated by Brieger that the bacilli are not infrequently absent from the discharge. In some cases, however, this difficulty disappears, and they are met with in considerable quantities. This usually occurs in acute cases and early in the condition, for, as has been pointed out, the bacilli are frequently destroyed in the putrefactive changes initiated by other organisms.

Examination of the neighbouring lymph-glands may show the presence of typical tuberculous changes and thus clear the diagnosis. If doubt still exists our final court of appeal lies in experimental inoculation of animals, as has been done by Milligan (7), who thus

obtained positive proof in eight out of ten cases submitted to this method. [It is of interest to note that the two negative cases were patients aged nineteen and eleven years respectively, while the eight positive were all patients under three years.]

This method involves time and is frequently impracticable except in hospitals associated with pathological laboratories. For practical purposes, then, we must rely on the clinical appearances and history, and the microscopical examination of the discharge as the joint foundations of our diagnosis, and in most cases these give sufficient data. In cases of chronic otorrhœa, without pain, and associated with multiple perforations or destruction of the membrana, temporal caries, facial paralysis, or enlargement of the lymph-glands, we may accept the presence of acid- and alcohol-fast bacilli in the discharge as proof of the tuberculous nature of the disease with confidence.

CASE 1.—M. H—, aged 9 months. When patient was seven months old a swelling was noticed behind and below the right ear, from which a discharge was observed three weeks later. Patient was the youngest of three; the other two had never shown any signs of tuberculosis. Parents healthy. The mother's brother died of phthisis. Patient was breast-fed entirely until admission. No history of previous illness except chicken-pox some months ago and diarrhœa and cough just prior to present condition.

On admission—General condition poor. Marked swelling over and below mastoid on right side; discharge from right ear. Glands below right ear enlarged.

The mastoid abscess was opened and the underlying bone found to be carious, a perforation into the antrum being found. This was opened up and antrum and cavum found to be filled with *débris*. The ossicles were detached and carious and the membrana was found to be almost entirely destroyed. There was extensive caries of the temporal bone. The carious bone was thoroughly scraped away and the antrum and cavum were laid freely open. The posterior wound was closed and the cavity packed through the external meatus. Examination of *débris* from the antrum and cavum showed presence of tubercle bacilli in large numbers. Subsequently the local condition remained satisfactory but patient's general condition did not improve. Six days after operation temperature rose to 102.4° F. (see Chart 5). Suddenly an erythematous rash developed, diarrhœa and later a cough set in, and patient died three days later.

Post mortem.—The local wound was quite clean. The apex of the right petrous temporal bone was carious, a small collection of

caseous *débris* in this position being separated from the middle ear by a layer of apparently healthy bone. The left petrous temporal also showed some caries. There was no meningitis and no thickening of the dura covering the temporal bones. The left lung showed a patch of tuberculous broncho-pneumonia in the basal lobe. Miliary tubercles were present in both lungs and in the spleen. Examination of the other organs showed no sign of tubercle elsewhere.

CASE 2.—M. G—, aged 3 months. Patient was healthy until three weeks before admission, when he began to “go back” and a lump was noticed below the left ear. This increased in size and a week later complete facial paralysis set in suddenly on the left side. Three or four days later discharge from the left ear was observed. Patient was breast-fed until admission to hospital. No history of tuberculosis in the family.

On admission—Nutrition fair. Complete facial paralysis on the left side. Below the left ear were large masses of glands; behind the ear was a fluctuating swelling. From the ear thick foetid discharge issued, examination of which revealed the presence of tubercle bacilli. Examination of other systems revealed nothing abnormal. As the membrana was completely destroyed an attempt was made to improve the local condition by antiseptic flushing, etc. There being no resulting improvement locally, the enlarged glands—which were mostly caseous—were removed, the mastoid was exposed and found to be perforated. On opening up the antrum it was found to be filled with caseous *débris*. The cavum contained similar material and the adjacent bone was carious. In the tegmen tympani was an irregular-shaped opening covered by thickened dura mater. The ossicles were lying loose and were carious. All the carious material was freely scraped away and the cavity was packed with iodoform gauze through the external meatus. Subsequently the cavity was syringed with peroxide of hydrogen until discharge ceased, after which it was kept dry. Seven days after operation temperature rose and cough developed and became incessant, diarrhœa set in and purpuric spots appeared on the skin of the trunk. Patient sank rapidly and died twenty-three days after operation.

Post mortem.—The local conditions appeared quite satisfactory. There was no meningitis, though the dura was thickened over the aperture in the middle cranial fossa. Miliary tubercles were found scattered through the spleen and both lungs. There was no sign of tuberculosis of the bronchial or mesenteric glands or elsewhere.

CASE 3.—J. D—, aged 2 years. Patient was under treatment for tuberculosis of the retropharyngeal and deep cervical glands. There was nothing suggestive of middle-ear mischief—no otorrhœa, no facial paralysis, no enlargement of mastoid glands. Subsequently signs of tuberculosis of the right apex developed, together with signs of enlargement of the bronchial glands and later of laryngeal tuberculosis, and a fatal termination ensued. Patient had been breast-fed nine months, and there was no family history of tuberculosis.

Post-mortem showed extensive consolidation of upper lobe of right lung, with a small cavity—the size of a pea—in front. The pleura over the apex was thick and laminated. Bronchial glands were caseous. The larynx showed ulceration of the aryteno-epiglottidean folds. Cervical glands were caseous in the right carotid and supra-clavicular triangles. The pericardium showed a small patch of inflammation near its reflection from the great vessels. Miliary tubercles were scattered throughout both lungs; mesenteric glands were caseous. The right temporal bone was carious between the apex of the pars petrosa and the cavum tympani, which contained caseous *débris*. This was examined, and tubercle bacilli were found in it. The membrana was intact.

CASE 4.—E. F—, aged 1 year and 1 month. Patient was admitted suffering from otorrhœa on the right side, of one month's duration. A week after commencement of the discharge swelling over the mastoid was seen. Patient was breast-fed until admission, and there was no family history of tuberculosis.

On admission.—General condition fair. Slight swelling over the right mastoid; no facial paralysis; foul-smelling discharge from ear. The discharge was examined for tubercle bacilli, but the result was negative. Examination of other organs revealed nothing of note. Patient was operated upon, the antrum being found to be perforated high up and far back. Antrum was filled with caseous *débris* and granulation-tissue, beneath which was carious bone. The membrana had a single perforation of very large size. Operation was completed as in Cases 1 and 2. Scrapings from the granulation-tissue were examined, and tubercle bacilli found in them.

Subsequently the local condition did satisfactorily, and the wound remained dry. Patient's general condition, however, was not very satisfactory, and he was taken home by his parents. Six months later he was reported to be in fair general health.

CASE 5.—P. S—, aged 6 years. Eighteen months prior to ad-

mission facial paralysis suddenly occurred on the right side. This was followed soon after by discharge from the right ear. Gradually the glands in the neck became enlarged. The aural discharge has continued ever since. Previous illnesses include *tabes mesenterica* when two years old.

On admission.—There was absolute paralysis of right side of face; the cervical glands formed bulky masses below the right ear and over the mastoid. Glands were also felt in the anterior triangle on the left side. From the right ear issued abundant foetid discharge, examination of which showed tubercle bacilli only after several films were examined. Four days after admission meningeal symptoms set in, and death supervened fourteen days later (see Chart 4). Prior to death lumbar puncture revealed presence of lymphocytosis and turbidity of the cerebro-spinal fluid, and tubercle bacillus was found after centrifuging. Permission for post mortem could not be obtained.

CASE 6.—E. B—, aged 1 year and 9 months. Patient was admitted with history of diarrhoea and vomiting for a fortnight. A week later cough set in and became urgent. Coma supervened gradually, and was nearly complete when patient was admitted. No history of facial paralysis or otorrhoea. Patient had been breast-fed until sixteen months, and there was no family history of tuberculosis. Patient died twelve hours after admission, never having regained consciousness.

Post mortem showed acute pneumonic phthisis of both bases, with early excavation of right base. Bronchial glands enlarged. On opening the skull the meningeal veins were found to be extensively thrombosed on both sides, and there was hæmorrhage over the left Rolandic area. On opening the temporal bones caries was found on both sides, the middle ears containing thick pus, which, on examination, was found to contain tubercle bacilli and streptococci.

CASE 7.—J. J—, aged 2 years and 6 months. Patient had been gradually wasting for a year. She had had otorrhoea for four months and enlargement of the cervical glands for nearly a year. Facial paralysis had not been observed by her guardian. Patient was youngest of six, of whom three died—cause unknown. Patient was breast-fed for seven months, and weaned on account of the mother's health. Her mother died a year ago of phthisis.

On admission.—General nutrition very poor. There was almost complete paralysis of left side of face. From the left ear was

offensive discharge. The cervical glands formed large masses on both sides of the neck. Some of the glands appeared to be softening, but there were no actual abscesses. There was percussion dulness behind the manubrium sterni. Masses of glands were palpable in the abdomen, and the liver was enlarged. The lungs appeared healthy. Examination of the aural discharge showed tubercle bacilli in every film. Patient was removed from hospital, and died at home six months later.

CASE 8.—G. H—, aged 1 year and 6 months. Patient was admitted for tuberculosis of lungs and peritoneum of two months' duration. He had otorrhœa from left ear for three months. He had been breast-fed for eleven months.

On admission.—In addition to signs of peritonitis and pulmonary tuberculosis patient had slight discharge from both ears. Both membranæ were perforated. Tubercle bacillus was found in discharge from left sides. There was no facial paralysis, and no glands were palpable. Patient died a week after admission.

Post mortem.—Patch of tuberculous broncho-pneumonia in right apex; bronchial glands caseous; general tuberculous peritonitis of the adhesive type; mesenteric glands caseous; liver showed a caseous area, to which the bowel was adherent. No signs of tuberculosis elsewhere except caries of left temporal bone in region of inner ear and mastoid, the tympanic cavity being filled with *débris*.

CASE 9.—G. F—, aged 1 year. Patient had history of otorrhœa on right side for three months, with enlargement of mastoid gland, which had been lanced two months ago. Patient had been wasting for some months, and had had a purpuric rash for six weeks. Patient had been bottle-fed on patent foods entirely. No family history of tuberculosis.

On admission.—Patient was wasted, and had a peculiar waxy-yellowish colour. Over the right mastoid was a discharging sinus. There was no aural discharge, but the glands below the right ear were enlarged. The membrane was intact. Large masses of glands were palpable in the abdomen and the spleen was palpable. The sinus over the mastoid was opened up, and the carious bone scraped. The antrum was found to be filled with *débris*, in which, on examination, tubercle bacillus was found. Subsequently, pulmonary symptoms set in, Eustace Smith's murmur became audible, and increased. Death occurred five weeks after operation.

Post mortem.—Extensive pneumonic phthisis of right upper lobe,

patches of broncho-pneumonic tubercle in both lower lobes. Bronchial glands enlarged and firm. Mesenteric glands caseous. Spleen enlarged, and containing caseous nodules as large as a marble. Permission to open the skull was not obtained.

CASE 10.—W. E—, aged 4 months. Patient had been breast-fed one month. The mother has phthisis. Otorrhœa appeared on the right side when patient was two months old. This was speedily followed by swelling of the glands behind and below the ear, and later of those in the parotid region. Facial paralysis set in five weeks before admission.

On admission.—There was complete paralysis of right side of face. There was copious foetid discharge, containing tubercle bacilli in very large numbers (ten to fifteen in almost every field), from the right ear. The membrane was completely destroyed, the meatus opening into a large cavity. A probe passed in horizontally encountered carious bone at a depth of two inches. The glands were much enlarged below, behind, and in front of the ear. The general condition was considered to be too enfeebled to admit of radical operation. Patient died a month later.

Post-mortem.—Mesenteric glands caseous. Miliary tubercles in both lungs. There were two collections of greenish pus in front of the sterno-mastoid muscle on the right side. The neighbouring glands were enlarged and caseous. In dissecting them up one opened into a large cavity with irregular sloughing walls. The inner wall was composed of the carious remains of the temporal bone. The external meatus opened directly into the cavity. The mastoid antrum and cavum were completely destroyed. On opening the skull thickening of the dura covering the tegmen tympani was seen. The tegmen itself was carious. The bone forming the outer wall of the antrum and that forming the posterior wall of the external meatus were completely destroyed.

CASE 11.—V. D—, aged 5½ years. Patient has had enlarged glands on both sides and double otorrhœa (intermittent) since he was ten months old. There is a family history of tuberculosis. Patient had been breast-fed.

On admission patient had discharge from right ear (none from left ear). The right membrane was completely destroyed, and carious bone was palpable. Tubercle bacillus was found in the discharge in small numbers. There was complete nerve-deafness on right side, and hearing on left side was markedly impaired. Patient

had adenoids, which were subsequently removed. Enlarged glands were present in the parotid region—where there was a discharging sinus—and below the ear in front of and behind the right sternomastoid muscle. These glands were excised or scraped, and found to be typical caseating glands. The antrum was opened up, and found to be filled with caseous *débris*. The walls of the cavity were carious. The carious bone was removed, and the middle ear packed through the meatus. Patient's subsequent progress was satisfactory.

CASE 12.—A. H—, aged 2 years and 9 months. Swelling over the left mastoid came on when patient was two years and seven months. This was soon followed by otorrhœa. There was the history of night-sweats for three months. Patient had been breast-fed for thirteen months. The mother is stated to be phthisical.

On admission.—There was otorrhœa on left side, a fluctuating swelling was present behind the ear. Enlarged glands were present in the posterior triangle. There was no facial paralysis. The aural discharge contained tubercle bacilli in very large quantities. There was impaired percussion-resonance over the manubrium sterni, Eustace Smith's murmur was present. No palpable glands in the abdomen.

The antrum was opened up and found to be filled with caseous *débris*. It was cleared out, and the complete operation was performed. A caseating gland below the ear was scraped out. Patient made a good recovery, and after-progress was quite satisfactory.

PROGNOSIS.

Of the above twelve cases it will be seen that no fewer than nine terminated fatally. In two cases the aural condition was not suspected until it was revealed on the post-mortem table. It will also be seen that of the nine fatal cases no less than eight had tuberculous lesions elsewhere at death, thus substantiating that the condition does not usually reveal itself prior to the commencement of dissemination. It is largely on this account that the prognosis is so gloomy. Miliary tuberculosis might be expected to be of frequent occurrence when we recollect the age-incidence of the condition and the frequent association of miliary and of bone tuberculosis be considered. In the present series it was seen on four occasions, and the presence of meningitis in another case (No. 5),

not subjected to post-mortem examination, points to its occurrence in a fifth.

Politzer, as has already been mentioned, is of opinion that the condition never undergoes spontaneous cure, and even casts doubt on the authenticity of such cases as have been reported cured.

The prognosis of the condition when it arises as a complication of phthisis no doubt largely depends on the course taken by the pulmonary condition; and since this complication most frequently arises late in the course of phthisis—especially where there is cavitation—we can rarely expect to see recovery in such cases, though it has been reported by Milligan and others.

Of the general considerations which might be held to account for the bad prognosis of such cases as are to be considered as primary, the most important are the age-incidence, the affection of bone, and the unsatisfactory results of treatment.

It has been shown that the condition when primary is more frequent in infants under two or three years of age than at any other age, and the feeble resistance to tuberculosis shown by patients at this age and the frequency of miliary dissemination largely account for the frequency of a fatal issue. The affection of the bone is also of significance in view of the frequency with which miliary tuberculosis arises from a focus in bone.

The unsatisfactory results of treatment are, unfortunately, only too patent. Milligan states that "at least 40 per cent. of my cases of proved tuberculous infection have succumbed to the disease." In the present series the case mortality was 75 per cent., though it is only fair to state that in 16 per cent. the condition was unsuspected during life and no local treatment had been employed. It does not come within the scope of the present paper to discuss treatment except in so far as it affects the prognosis. There are numerous reasons why operative interference has done so little to reduce the case mortality. It must be remembered—and this cannot be too freely insisted upon—that treatment is usually commenced too late, the condition is usually too far advanced for half-measures, and the patients are too young, and usually too much reduced in strength, to stand extensive radical operative interference.

Amongst the factors regarded as of most evil omen by Milligan are the presence of extensive caries, facial paralysis, copious blood-stained discharge, of massive enlargement of the lymph-glands, and the presence of tuberculous lesions elsewhere; and it will be seen that these are the very symptoms for the relief of which the patient first comes under the notice of the surgeon. Briefly, we may say that

the insidious onset and the absence of pain are the causes of the high death rate, for the patient is rarely subject to treatment until the condition locally has become too advanced for cure or until the dissemination has become already established.

The presence of extensive disease in an infant at an age when radical operative proceedings are not well borne, and at which widespread dissemination through the blood-stream is prone to occur, affords little prospect of successful treatment. It must not, however, be forgotten that some primary cases even at this early age if promptly treated may improve or recover. Successful cases, in which cure has resulted, have been reported by Milligan and others even in patients in the first year of life. Of few other chronic conditions can it with equal justice be said that the condition most favourable to prognosis is the early diagnosis of the disease.

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The Society for the Study of Disease in Children.

A MEETING of the Society was held on October the 19th, at No. 11, Chandos Street, W., Mr. MILNER BURGESS (Harlesden) being in the Chair.

A Case of Osteo-arthritis in a girl aged 13 years was shown by Dr. T. R. WHIPHAM. She began to suffer with pains in both wrists and hands the previous Christmas, then swelling of the joints was noticed, and subsequently both knees and ankles were attacked. Both wrists and the metacarpo-phalangeal and first interphalangeal joints of the hands were considerably enlarged, and over either carpus, especially over the left, there was cystic swelling of the synovial membranes. Both knees, ankles, and

metatarso-phalangeal joints were also enlarged. The condition was most marked in the wrists and hands, and the muscles of the forearms and hands were considerably wasted. The viscera, urine, and reflexes were normal. There was no enlargement of the spleen, and only one slightly enlarged gland in the left axilla. Skiagraphs showed no obvious changes in the cartilages and bones, the swellings being apparently in the synovial membranes and in the tissues around.

The CHAIRMAN (Mr. MILNER BURGESS) (Harlesden) said that he had a child a little older than the present patient the subject of osteo-arthritis, and in that family there was a distinct history of rheumatism. In her case there was dislocation of all the bones in the upper and lower extremities.

Dr. G. A. SUTHERLAND said most practitioners were inclined to regard such cases as extremely chronic, and perhaps as incurable. Three years ago he showed before the Society a girl who had all the appearance of being a case of chronic rheumatoid arthritis. There were no bony changes, but the ankles, the knees, the wrists, the finger joints, the vertebræ, and the jaws were all affected at different times. But there was no involvement of the heart, nor any evidence of the presence of rheumatism in the case. In the summer just ended she began to mend, and now had perfectly recovered, though previously she had been absolutely crippled.

Dr. PORTER PARKINSON asked if there was any gonorrhœal infection. He had seen many cases of adults with similar lesions in whom there was reason to suppose there had been a history of gonorrhœa.

Dr. WHIPHAM, in reply, said there was no history of any vaginal discharge, nor was there any abnormality in that region. The child had not yet begun to menstruate.

A Case of Congenital Deformities in a Girl aged 15 years, of small Stature. was also shown by Dr. T. R. WHIPHAM. The bones of the left side of the face were ill-developed, and there was deformity of the left pinna. The arch of the palate was high. The left shoulder was elevated, and the left arm was shorter and presented less muscular development than its fellow. In front gaps could be felt in the regions of the 2nd and 4th ribs. Posteriorly there were lateral curvatures of the spine in the cervical and upper dorsal regions, the latter being to the left. The left scapula was deformed and rotated inwards. The muscles of the shoulder girdle were shortened on that side, with the result that the arm could not be raised beyond the horizontal position, and that torticollis was present. Skiagraphs showed, in addition to deformity of the scapula, absence or mere rudiments of apparently the 2nd, 4th, and 5th ribs, while the 3rd took an abnormal course downwards midway between the 1st and 6th. The lower ribs and viscera appeared normal.

A Baby (female), aged 10 months, with a Congenital Malformation of the Heart, was shown by Dr. T. R. WHIPHAM. The child was cyanosed and presented clubbing of the fingers and toes. The hard palate was high, and the soft completely cleft. The right side of the heart was enlarged, but on auscultation no definite murmur could be heard, though the first sound was a little soft. A striking feature of the case was the great polycythæmia which existed. On September the 21st the red cells numbered 12,900,000 per c.mm., with 150 per cent. of hæmoglobin, and the leucocytes totalled 12,000. On October the 15th the red corpuscles were 10,450,000,

and the hæmoglobin 135 per cent. The first was the highest count that had been found recorded.

Two Cases of Hypospadias in Brothers were shown by Mr. W. MILNER BURGESS (Harlesden). In one case there were three openings into the urethra, one at the meatus and two in the penile urethra, through the lower of which a sound could be passed into the bladder. He passed urine seated on a chamber.

Mr. CLEMENT LUCAS said there were records of many interesting cases occurring in the same family. In the matter of operation they were most unsatisfactory cases. The only operation which he had found of service was to make use of the hooded prepuce. The operation which he had done in some cases, to lengthen the penis and bring it further forward, was to button-hole the hooded prepuce, and make use of the skin over the lower part of the penis. In that way one was able to cover up the lower part of the urethra, and lengthen the prepuce forwards.

Mr. LOCKHART MUMMERY said it was impossible to do much in the case of a child only a year or two old; he would wait until it was six or eight years of age.

A Case of Bilateral Congenital Deformity of the Radius in a child aged 7 years was shown by Mr. P. LOCKHART MUMMERY. The patient was of a degenerate type and lacked intelligence. The hands were in the position of pronation and there was only a very small degree of rotatory movement obtainable at the wrist. The head of the radius could not be felt on either side. The ulna appeared to be normally developed. The X-ray photograph showed the upper end of the radius terminating in a point and not articulating with the humerus at all. There was a marked bend also in the upper end of the radius on both sides. It appeared that the bend in the radius was principally accountable for the lack of rotatory movement. There was no record of a similar deformity in the family.

Mr. CLEMENT LUCAS did not think that the radius was in any way deformed, except in the non-development of the epiphysis. He regarded the case as one of spastic contraction of the pronators. The radius was drawn round into a strongly pronated position, but the skiagraph was entirely deceptive, because the skiagraph of a cartilaginous radius would throw no shadow. But if examined carefully it was obvious that the head of the radius could be felt most distinctly in both arms. A pronated forearm was not at all an uncommon deformity. The pronators of the forearm were so much stronger than the supinators that it required very little weakening of the nerve-supply of the supinators to throw the arm into a pronated position. He believed that was what had happened in the present case. With regard to treatment, he would do all he could to stimulate the supinators, forcibly but gently supinating the arm daily and encouraging every possible movement. It was what one would expect if the radius would not perform its proper function; its ossification would be delayed, and that would probably account for the lack of ossification in the upper arm.

Mr. MUMMERY, in reply, said he did not understand, from Mr. Lucas's explanation, why she could not supinate the hand on trying to move it. The bones appeared to be locked together when an attempt to supinate was made.

A Case of Bilateral Congenital Sinuses of the Lower Lip was shown by Mr. H. S. CLOGG. The child was born with a severe degree of bilateral

complete hare-lip and cleft palate. In the lower lip on the upper margin on either side of the mid-line was a papilla which was surrounded on the mouth-aspect by a groove: a sinus led down from this groove into the lip just underneath the mucous membrane for about a quarter of an inch. These sinuses converged but did not meet; some mucus was seen to issue from these sinuses.

A Case of Persistent Allorhythmia was shown by Dr. ALEXANDER MORISON. The patient, a boy aged 8 years, since he had been under observation suffered from arrhythmical action of the heart, but the type of the arrhythmia had been of that arrhythmeal sort to which some have applied the term "allorhythmia" — that is to say, another rhythm than the average normal. It was characterised by the occurrence at intervals of an "extra systole" and long pause. It did not seem to incommode the child. There was no other cardiac abnormality. He had obtained the history of intermittent action of the heart in early childhood in a case in which the heart, without any valvular defection, became a source of disablement in later life, but this was not the invariable experience. The mechanism of the phenomenon was quite clear, but its essential cause was not so evident.

Dr. C. O. HAWTHORNE narrated a case which proved that the condition was compatible with a number of years of active life. The patient was now twenty-six years of age, and the irregularity of the heart's action could be traced to over-strain at football when at school, yet his general health was good.

Dr. MORISON, in reply, attributed the altered rhythm to the severe shock to the child at an early period of his life, when he fell into a bath of very hot water.

A Case of Infantile Paralysis of the Fifth Segment of the Cord, resembling Erb's Type of Paralysis, due to a Lesion of the Fifth and Sixth Cervical Nerves, was shown by Dr. LEONARD GUTHRIE. The child at thirteen months of age had a small superficial abscess in the right mastoid region opened. No anæsthetic was employed. No history of injury before or after could be ascertained. On the night following the operation twitching in both arms was observed, and on the ensuing day the right arm was found to be paralysed as at present.

A Case of Multiple Lupus Vulgaris in a boy aged 5 years was shown by Mr. GEORGE PERNET. The disease had been present two to three years. There were three foci of disease, viz. the elbows and the face.

A Case of Habit Spasm in a boy aged 6 years was shown by Dr. G. A. SUTHERLAND. The movements consisted of (1) blinking of the eyes, (2) twisting the mouth, (3) jerking out the tongue, (4) jerking the head, (5) jerking the right shoulder, and (6) occasionally throwing out his legs and arms. In addition he made curious laryngeal sounds at times. No history of rheumatism or chorea. Nervous temperament. At the end of ten months the condition showed no improvement.

Mr. SYDNEY STEPHENSON said that every ophthalmic surgeon was familiar with a class of habit-spasm which affected children between the ages of three and ten, and which consisted in closing the eyes and drawing up the angle of the mouth, or in a series of blinking movements. In many of the cases he cause was a reflex irritation from the eyes. He had so frequently seen

cases cured by the provision of proper glasses, and even by the use of atropine, that he was convinced that the two things were cause and effect.

Dr. SUTHERLAND, in reply, said the spasm began in the usual way with grimacing, consisting chiefly of blinking of the eyes and slight movements of the nose and mouth. The present child had hypermetropia, and a month ago an oculist examined her and ordered glasses, which had been worn ever since, but the spasm had not been improved.

Editorial.

THE AMALGAMATION OF MEDICAL SOCIETIES.

IN the editorial of last July we criticised the proposal to amalgamate the chief medical societies of London, both on general grounds and with reference to the scheme which had been submitted to the consideration of the various societies. Since then the scheme has been somewhat modified and again submitted for consideration and approval.

Amalgamation depends for success on two factors—namely sentiment and financial stability. On the sentimental side it is essential that the various amalgamating bodies should be convinced that amalgamation would be beneficial or a great convenience, or that it “would add to the prestige of British medicine.” Such sentimental reasons are of dubious import and incapable of verification. Sufficient attention was drawn to them in the previous article. At present we wish to lay stress on the more serious question of financial stability.

At first sight the scheme put forward in the Report submitted to the societies does not strike us as a sound business proposition. In certain respects it is suggestive of the “confidence trick.” Each society is asked, if it approves of the scheme, to “appoint a representative to form a committee to draw up rules and to deal with the necessary formalities of amalgamation.” Thus, if a society sends a representative it must either do so in accordance with these terms, or must send a covering letter stating that the representative is only empowered to agree on certain conditions, which may or may not meet with the approval of the new committee. One of the financial proposals is that “the invested funds and other propert

of any society joining in amalgamation shall at once become the property of the new Society." It is in this respect that a good deal of "confidence" seems required. The words "at once" suggest that the new body will very early in its existence be in need of realisable funds.

Though making this proposal the Report contains no definite statement of the capital values and the liabilities of the various societies. It merely shows that the invested stock amounts to about £11,000, and that there is a debenture debt of over £35,000. The value of the real estate possessed by the two chief societies is not stated. It seems to us a curiously unbusinesslike proceeding on the part of the Organising Committee not to have had an independent valuation of the properties made and included in the Report, even if it had necessitated a surveyor's fee. Apparently the capital value and the liabilities of the different societies are regarded as of minor importance, and the Report is, therefore, based on an estimate of the income, cleverly brought up to the round sum of £10,000, and an estimate of the annual expenditure.

A striking feature of these estimates is the ingenious manner in which it is shown that the new Society will be better off financially if the Medical Society remains aloof than if it joins. Yet the Medical Society is in a sound financial position, with a considerable capital, and an annual subscription list which more than covers its expenditure. Surely the Report attempts to prove too much. Such a result suggests remarkable ingenuity and the necessity for careful investigation of the methods by which the result was arrived at.

It appears to be based on the assumption that, even if the Medical Society remains aloof, all the other societies will enter the spider's den. This is almost certainly a false assumption, for it is more than probable that, in such an event, certain other societies would remain aloof. The Society for the Study of Disease in Children has hardly considered it worth while to enter into negotiations until it is known whether the Medical and the Royal Medical and Chirurgical Societies have agreed on a basis of amalgamation.

On the assumption that every society joins, the estimates yield a balance of £1200 a year "for Depreciation, Reserve, and Building

Fund and redemption of debentures." In order to pay off the debenture debt on the Royal Medical and Chirurgical Society by the date at which it is finally repayable, the year 1939, £1000 a year is required. This does not seem to leave much of a balance to provide for the "Depreciation, Reserve, and Building Fund"; and there is in addition a debenture debt on the Medical Society.

Further, it is a recognised feature of amalgamations, in everyday life, that expenses are apt to increase. Still more is it a common experience to find that estimates of expenditure are usually exceeded.

The estimates show where the increase in expenditure comes in. A salaried editor is to have £500 a year, and the salaries of paid officials are to be raised by £500, from £1048 to £1548; and about £400 over the average yearly expenditure is allowed for printing, stationery, etc. To meet the estimated expenditure an estimate is put forward of the income to be derived from subscriptions, investments, rents, and entrance fees. Such an estimate is clearly a speculative one as regards subscriptions. Turning to the question of rents, we find that some are derived from yearly tenancies, others from leases of varying duration.

Now comes the crux of the whole matter. Whenever the supporters of amalgamation are driven into a corner and asked to state clearly what is the benefit of amalgamation, the answer is invariably that "it will be cheaper." We maintain that it will be much more expensive to the medical profession as a whole, though possibly cheaper to some individuals.

If all the societies join it will be essential to maintain both the habitations in Hanover Square and in Chandos Street in order to provide sufficient accommodation. If both are maintained it passes the wit of man to understand where the reduction in cost will be made, more especially when it is clear from the estimates that the expenditure is to be increased.

Supposing that all the societies, with the exception of the Medical Society, succumb to the temptations of that blessed word "amalgamation," it will be absolutely necessary to terminate some of the tenancies in Hanover Square in order to provide the required accommodation. At once the noble annual credit balance of £1200 becomes reduced.

As a matter of fact, the new body will be more expensive to run efficiently than the old ones, and this so-called "cheapness" means that reliance is placed on an increased subscription list. In other words, it will be cheaper for those who are already Fellows of the Royal Medical and Chirurgical Society.

Further criticism might be devoted to the estimates for the monthly 'Proceedings,' but it is sufficient to point out that it will be quite impossible to maintain the standard or the continuity of the 'Transactions' as at present. The estimate for illustrations for one year is only £25.

We strongly advise the Society for the Study of Disease in Children to remain aloof. We are convinced that amalgamation is not for the benefit of the medical profession as a whole, and that it is decidedly disadvantageous to the special societies. As a section this Society would lose in importance and influence. The country members will benefit more by having their annual volume of 'Reports' maintained at its present high standard than by having monthly 'Proceedings,' which will be largely a repetition of papers published in the medical journals. The Society is financially sound, and its influence throughout the empire is steadily increasing. There is little doubt that those who are interested in the diseases of children will be better advised to remain or to become members of an independent and energetic society rather than to form units of a section under the thumb of a mixed committee, on which the influence of the richer societies will largely preponderate.

Abstracts from Current Literature.

Medicine.

Five years of anti-typhoid serotherapy (*Soc. de l'Internat. des Hôp.*, February 22, 1906; *Gaz. des Hôp.*, March 1, 1906, p. 296).—**Professor Chantemesse** gives the results of his experience obtained during the past five years. The mortality of typhoid fever in the Paris hospitals during that time was 17·3 per cent. During the same period, at the hospital where the serum was in use, it was 3·7 per cent. The treatment, apart from the use of serum, was the same. The temperature curve was completely modified and in a regular way. There are two stages—the first, which lasts a couple of days, is called the "reaction," the second "defer-

vescence." The pulse becomes more rapid and of higher tension as the temperature falls, while a leucocytosis appears at the same time. A notable polyuria occurs before convalescence and any albuminuria that was present disappears. The results of treatment depend greatly on the time of injection. Not a single case treated in the first week either perforated or died. In 712 cases perforation led to death only nine times. There was no death from hæmorrhage. The serum is antitoxic and bactericidal; it agglutinates the bacillus even in very high dilutions. Only small quantities are injected; it has no unpleasant effects.

ERNEST JONES.

Acute post-infectious psychosis with speech defects in children (*Arch. de Neurol.*, March, 1906, vol. xxi, p. 232).—**E. R. Daiche** has devoted a work of 95 pages to a study of the condition known as the *délire* of convalescence, *délire* of inanition, asthenic psychosis, etc. The condition, which is frequent in adults, has been well known since Régis' work; in children it is rarer, but a number of individual cases have been fully studied by different writers. It follows typhoid or pneumonia more often than other infections, even meningitis. It is at times accompanied by loss of function in one of the special senses, but it is especially speech that suffers. The clinical aspect is very variable and does not constitute a special affection. Delirium, mental confusion, disorientation, automatism, obnubilation and slowness of conception are prominent symptoms. The distinctive feature obtaining in children is the frequency with which one meets troubles of speech and writing. The treatment comprises rest in bed, appropriate moral treatment, and in occasional instances the use of hyoscine or duboisine. (A good summary of Régis' work will be found in *Arch. de Neurol.*, October, 1905.)

ERNEST JONES.

Contribution to the clinical and bacteriological study of the encephalo-meningeal lesions found in syphilitic new-born infants (*Soc. méd. des Hôp.*, January 12, 1906; *Gazette des Hôpitaux*, January 16, 1906, p. 67).—**Paul Ravaut** and **Andréo Puselle** give an account of a case which was admitted three weeks after birth with large liver and spleen, papular syphilides, and clonic spasms of the face and neck. Lumbar puncture revealed lymphocytosis but no micro-organisms. Post mortem the meninges over the cortex were a little thick and congested; at the base of the brain there was a sero-fibrinous exudate, covering like a spider's web the nerves and vessels of that region. Sections examined by Cajal's method showed numerous spirochaetes in the interior of the vessels, in their walls, and especially in the perivascular exudates. The exudate was made up largely of uninuclear cells in the midst of which spirochaetes were to be found.

ERNEST JONES.

Facial paralysis and lingual hemiatrophy (*Soc. de Neurologie*, January 11, 1906; *Gazette des Hôpitaux*, January 16, 1906, p. 69).—**Huet** and **Lejonne** showed a case of a girl, aged 15 years, who at the age of three suffered from an acute illness. After this the right facial nerve was paralysed, chiefly in the middle part, and from time to time there appeared spasms and fibrillary tremor. No sensory changes were present. The paralysis was also accompanied by right lingual hemiatrophy. There were no electrical changes in the muscles. The condition was probably due to either a meningitis or acute polioencephalitis.

ERNEST JONES.

The œdemas with albuminuria in young children (*Clinique Infantile*, 1905, '*Gazette des Hôpitaux*,' December 28, 1905, p. 1760).—**Stöltzner** first reviews the literature of this subject and then gives his personal experience. His conclusions are: These œdemas are found to occur after acute infectious diseases or—especially in younger children—gastro-intestinal affections. They may be very extensive; in the great majority of cases they are accompanied by ascites. They may last several days or several weeks. Their prognosis is almost always favourable. In their occurrence and characters they imitate exactly nephritis, and when the cases are examined after death inflammatory changes are always found. It is known that parenchymatous nephritis may certainly occur apart from albuminuria, so that the writer would class the present cases at one end of a scale, the other end of which is occupied by nephritis with albuminuria but no œdema. Intermediate are the ordinary cases with both albuminuria and œdema. ERNEST JONES.

The polyneuritis of whooping-cough (*Thèse de Bordeaux*, 1905 '*Gazette des Hôpitaux*,' January 13, 1906, p. 56).—**Georges Richaud** gives a summary of this complication. It is very rare, and only five undoubted cases are on record. Sometimes it is confused with the neuritis of tuberculosis or scarlet fever. There are three clinical types—(1) localised, (2) generalised, (3) pseudo-tabetic. Clinically the chief difficulty is to distinguish the condition from acute poliomyelitis. ERNEST JONES.

Congenital myoclonia (*Soc. de Biologie*, December 16, 1905; '*Gazette des Hôpitaux*,' December 19, 1905, p. 1726).—**Lenoble** and **Aubineau**, of Brest, read a paper on this subject. The disease may be hereditary and of a family nature, and is characterised by constant nystagmus, tremors, vasomotor, and trophic changes, with no reaction of degeneration. Intelligence may be affected. There are various types, of which the complex one is the rarest. The authors suggest the name of "nystagmus myoclonia." ERNEST JONES.

Contribution to the study of ossification in the tonsils (*Proc. Aert. de l'Acad. Roy. de Méd. de Bruxelles*, June 24, 1905; '*Gazette des Hôpitaux*,' 1905, No. 106, p. 1271).—**H. Halkin**, of Liège, has studied this subject at length. There are two views held as to the origin of the cartilaginous and bony niduses found in this region. One asserts their inflammatory nature, the other, which is held by most pathologists, traces their development to the "rests" of the second pharyngeal arch. The latter view is based chiefly on Ruckert's observations, in which cartilaginous islets were found eighteen times in forty-eight new-born children. Halkin maintains this view also, and supports it by describing a small serous cyst arising from the second branchial cleft in the deep connective tissue between the cartilaginous focus and the adenoid tissue proper. ERNEST JONES.

Mongolism (Third Annual Congress of the Society of Bavarian Psychiatrists, June 13, 1905: '*Arch. de Neurol.*' December, 1905, vol. xx, p. 478).—**Weygandt** gives us the result of a personal study of thirty-seven cases of this disease. The face is characterised especially by flattening, increased breadth, depression of the root of the nose, great breadth in the region of the zygomatic arch, obliquity and smallness of the palpebral

fissures; epicanthus is frequent; bradycephaly is always marked. The tongue nearly always shows changes: generally one notices fissures, with hypertrophy of the fungiform papillæ; it is usually long but not specially thick. The little fingers are curved inwards. The joints are extremely lax. Multiple stigmata of degeneration are to be found, such as ear-malformations, asymmetries, congenital heart-anomalies, and the like. Mentally the children are at first backward, then for some years amenable to some extent to educative influences, but finally come to a standstill. Contented and happy, they are fond of jokes. Speech is defective. Echolalia and echopraxia are commonly met with. They usually die early of an intercurrent affection; less than 10 per cent. survive to the age of twenty-five, but Weygandt met with one aged fifty-four. They are frequently the last children of a large family; the parents are often old or present disparity in age.

ERNEST JONES.

Clinical considerations on typhoid fever in children (*Arch. Gén. de Méd.*, January 23, 1906, p. 193).—**Pater** and **Halbron** consider this subject at great length. They contrast the accepted teaching on the special features of typhoid in children with the facts observed by them in sixty-three consecutive cases seen this year. Many of these cases are described in full. They insist on the frequency with which somnolence, vomiting and abdominal pain are met with at the onset. This abdominal pain, not severe, was present in half of the cases; it was independent of constipation and diarrhœa. Tenderness was present in two thirds of the cases. Meteorism occurred in 62 per cent., much more often than is generally thought. Diarrhœa was present throughout in 50 per cent. of the cases, and at some time or other in 87 per cent.; this is also in direct opposition to the current teaching. The rose rash was present in 71·5 per cent., far oftener than is generally supposed; it occurred early, frequently on the fifth day, and as a rule by the seventh day. The abundance of the rash bore no relation to the prognosis. An enlarged spleen was felt in 82·5 per cent. of the cases, and usually much earlier than with adults. The temperature was more variable than in adults, lobar pneumonia occurred twice, once being at the onset; broncho-pneumonia occurred six times; death followed in only one of these eight cases, contrary to the general opinion on the gravity of this complication. Kernig's sign was found only three times in sixty-two cases; it accompanied meningeal symptoms in only one of these. Endocarditis occurred only once. Intestinal hæmorrhage occurred in four cases, none of which were fatal. Perforation did not occur once, but recent statistics appear to show that this is as frequently seen in the child as in the adult. No bone or joint complications were met with, but there were three cases of furunculosis. Ulcerative stomatitis occurred in three cases, twice being mortal. Multiple emboli occurred in one case. A green serous diarrhœa occurred in eleven cases, ten of which were serious, seven being fatal. Relapses were often more serious than the original attack; they occurred in 17·4 per cent. of the cases. The relapse in two cases took place after thirteen days of complete apyrexia, and in one after sixteen days. Thirty-seven of the cases were male, twenty-six female. Forty-one cases were between ten and fifteen, twenty-two below this. The prognosis used to be stated as good in the typhoid of children, one authority giving even half per cent. as the average; of late years, however, this has been shown to be erroneous. Ten of these sixty-three cases died, one accidentally, the percentage, therefore, was 14·5. Of the nine deaths, seven were in girls and two in boys. ERNEST JONES.

Sero-therapy in typhoid fever (*'Acad. de Méd.,'* February 20, 1906; *'Arch. Gén de Méd.,'* February 27, 1906, p. 564).—**Brunon** gives the result of his experiences in the children's ward of the Rouen Hospital. The mortality has been reduced from 17 per cent. to 3 per cent. by means of Chantemesse's serum. No case treated in the first week has died. The duration of the illness has been shortened, the severe symptoms ameliorated, and complications to a great extent avoided. ERNEST JONES.

Light illumination during the home-work of school-children (*'Ueber die Beleuchtung bei der Hausarbeit von Schulkindern'*) (*'Hygienische Rundschau,'* July 15, 1906).—**E. D. Struben**.—In order to ascertain whether the effects of the improved lighting in schools was being checked by bad illumination at home during preparation the author visited the children attending two schools in Amsterdam. One school drew its children from the well-to-do classes, the other from the higher artisan class. For determining the quantity of light he used Wingen's photometer, and (with the help of Professor R. Sissingh) as illuminant he employed a chemical substance, amyl-acetate, with a definite boiling-point of 138° C. The children were visited whilst at work. Out of fifty-five from the well-to-do class, fourteen used electric light, forty used gas, one used Argand burner; but of forty-six children of the artisan class, nineteen used kerosene lamps, twenty-seven gas. Taking as standard of a good illuminant a 25 Hefner metre candle-power, the author classifies the lighting as to the quantity and position in reference to the child at work. He concludes that at least 37.6 per cent. of the lighting was bad irrespective of the condition of the children's eyes. Curtailing the amount of home-work will not make up for bad lighting, since the children, if not preparing lessons, are engaged in reading, music, hand-work, sewing, etc., which is, of course, just as bad for their eyes. So that after all possible hygienic precautions are taken in the schools, the children's eyesight is still in great danger through bad lighting at home.

M. D. EDER.

Persistent vomiting and acetonuria as a complication in a case of scarlet fever (*'Vomitos incoercibles con acetonemia, como complicación de la escarlatina.'*) (*'Gaceta Médica de México,'* January, 1906).—**Eduardo Vargas**.—A child, aged 7½ years, had what was apparently an ordinary attack of scarlet fever. On the fifth day vomiting set in. This continued almost without interval, until after six days it suddenly stopped. During this time no food could be retained: nausea or vomiting was provoked by the slightest effort—*e. g.* when the child put out her tongue. From the onset of this feature the breath had the characteristic smell of acetone. Those in attendance also noticed it. The urine was greatly diminished to 400 and 300 c.c. in the two last days. It contained a large amount of acetone, no albumin or sugar. With the cessation of vomiting the acetone disappeared from the urine. Fifteen days later all the symptoms reappeared, the vomiting, the acetone in the urine aggravated by some fresh symptoms. Diarrhœa set in, accompanied by acute pains in different parts of the body. The pulse was 150 and feeble, the urine reduced to 150 c.c. Finally there ensued delirium, contractures in the limbs, strabismus and stupor; the pupils were dilated and reacted to light. Six days after the onset of this relapse the symptoms again suddenly ceased, convalescence was now uninterrupted. As treatment, rectal injections of 150 grms. of normal saline solution, alternating with one of NaHCl₃, were given every three hours:

80 c.c. of normal saline solution were injected subcutaneously the day prior to the final clearing up of all the symptoms, and may have been the means of saving patient's life.
M. D. EDER.

Vomiting with acetonæmia ("Vómitos con Acetonemia") ('*La Semana Médica*, June 7, 1906).—A. Zubizarreta.—A male child, aged $2\frac{1}{2}$ years, was listless on May 1, complaining of headache. He had suffered from a chronic enteritis until eight months old; there was nothing else noteworthy in his history; the child had been breast-fed during the first eight months. Towards night incessant vomiting ensued with nausea and straining. The first vomiting consisted of food, the later ones of a yellowish bitter fluid. There was no great prostration, no abdominal pain, much thirst, and in a brief interval the child took some milk. The first thing the author noticed when he entered the room in the early morning was a smell as of chloroform. Approaching the patient he found the breath smelt strongly of acetone. The temperature was 100.4° F., and the pulse 120; physical examination negative. The urine gave the acetone reaction and was otherwise normal. Magnesia was prescribed, and as a drink cold milk and sweetened water. The vomiting ceased the same day and the child was quite recovered twenty-four hours later. The writer concludes that the acetonæmia is not the cause of the vomiting; both are possibly due to some intoxication of intestinal origin. The causation is, however, quite obscure.
M. D. EDER.

Congenital measles ('*Gaz. Hebd. des Sci. Méd.*, June 3, 1906).—Rocaz relates the case of a child, aged 3 years, who suffered from measles, which was communicated to her three sisters. The mother, who had previously had measles when a child, presented the same symptoms, and was confined prematurely of an eight and a half months fetus. This infant had at birth a clearly-marked eruption on the upper part of the body resembling that of measles, but had no fever and no cough. The child was suckled by its mother and never suffered from any symptoms, neither did the rash extend below the thighs. This, the author states, is usually the case in the congenital affection, of which he can recall ten cases.

J. PORTER PARKINSON.

Intestinal origin of tuberculosis of the tracheo-bronchial glands ('*L'Echo Méd. du Nord*, May, 1906).—Calmette, Guérin and Diléarde show that in young cows and heifers who are given small quantities of tubercular bacilli of bovine origin the organisms traverse the intestinal wall and are often retained in the mesenteric glands without producing lesions recognisable at an autopsy or microscopical examination; frequently, however, the tracheo-bronchial glands are visibly affected. The inoculation of these apparently healthy glands into guinea-pigs is followed by the development of tuberculosis in those animals. In four children who had died from tuberculosis and whose mesenteric glands were apparently healthy, these glands were inoculated into guinea-pigs all of whom developed tuberculosis; and in three other children who apparently were free from tubercle at the autopsy injection of the mesenteric glands into guinea-pigs also produced tuberculosis. The authors conclude that in animals and in the infant whenever there is tuberculosis of the tracheo-bronchial glands those of the mesentery are likewise affected even when they appear healthy, and secondly, that the mesenteric affection should be considered primary.
J. PORTER PARKINSON.

Involuntary nocturnal micturition due to urinary hyperacidity

(*'La Clin. Infant.,'* June, 1906, p. 321).—**Carrière** and **Caudron** draw attention to the important part played by urinary hyperacidity as a cause of incontinence. Their attention was first drawn to this fact by the case of a child in whom phimosis was supposed to be the cause of the nocturnal micturition, which continued, however, after circumcision. Examination of the urine showed a considerable increase of acidity (5 to 12 gr., as oxalic acid). Bicarbonate of soda internally was followed by rapid improvement, and when it was suspended the affection returned. After resuming the treatment for four months he was completely cured. Three further cases are reported at length, and the authors conclude that the sole cause of this complaint in children is an exaggeration of the urinary acidity. In order to correct it alkalis are prescribed in the form of bicarbonate or phosphate of soda. It is necessary to avoid abstinence from drink at the evening meal, as it causes the secretion of a scanty urine loaded with urinary acid. The action of the skin should be encouraged by dry or alcoholic friction, by massage, and other hydropathic measures. The treatment must be sufficiently prolonged to prevent a relapse, but it is difficult to furnish exact data for the moment for leaving it off. Large doses, however, are necessary for at least two months (1 to 2 gr. at bed-time), and it is only when the urinary acidity has fallen to at least 2 gr. in twenty-four hours that it would be wise to begin to diminish the dose in a progressive fashion. As a general rule, the treatment lasts five to six months.

VINCENT DICKINSON.

Enterospasm as a cause of habitual constipation in children (*'La Pediatria,'* May, 1906, p. 343).—**C. Cattaneo** of the Children's Clinic at Parma, publishes seven cases in children between the ages of six and ten years. He considers that functional causes of constipation, other than a deficient flow of bile into the intestine, are represented by functional alteration either of the muscular or nervous element of the intestine, and can be explained either by a diminution or exaggeration of activity, so that we have constipation due to atony, and constipation due to contraction and spasm of the intestine. The former are well known, but the latter have received little attention by authors; and of these an extensive bibliography is given. In the cases which are described very fully, there seems to be no other possible cause than a functional alteration in the intestine of nervous origin, the abdomen was always small, often retracted as in meningitis, no faecal masses were felt and the stools passed were always hard, dry, yet not in the form of thin cylinders as described by Fleiner as being characteristic of enterospasm, but consisted of scybala or balls smaller than usual. The shape of the faeces is dependent on the part of the intestine where the contraction takes place. This may extend to the whole colon as in serious cases of enterospasm which end in a form of membranous enteritis, which are rare; but is more frequently limited to a portion of the colon, or sigmoid flexure, or caecum, and it is easily seen that such a condition would not give rise to ribbon-like or pencil-shaped faeces, but rather hard and broken pieces, and would not cause pains either spontaneous or excited by palpation. A great element in favour of spasm was the absence of pains in the author's cases. From an anatomical point of view, spasm of the intestine can only be the direct consequence of an exaggerated activity of the motor fibres of the vagus, or of a paralysis of its inhibitory fibres. But the altered nerve function may be not only in the intestine but in the centres of intestinal innervation in the brain. When the nervous system is weakened from acquired or hereditary irritability, a slight central or peripheral irritation is

sufficient to cause the spasm, and as it is notably the case in children that the nervous system in general is more excitable, not only the possibility, but also the frequency of intestinal spasm may be easily inferred. These irritations, central or peripheral, extrinsic or intrinsic to the intestine, may be very slight, so much so that in normal conditions of the intestine they produce no effect, or very remote ones: thus Geoffroy admits that errors in hygiene at the time of suckling may lay the foundation of a future enterospasm ('XIII Congrès Internat. de Méd., Paris,' 1900). For diagnosis the presence of mucus in the stools is more to be relied on than palpation of the contracted bowel, which may be confused with the tendon of the *psoas minor*. Anaemia was not very marked, but a neuro-arthritis heredity was often noticed; apart from the constipation the patients usually presented no other disturbance, nor was either general or local neurosis of the digestive apparatus at all prominent. As regards the therapeutics of this form of constipation, purgatives should be prohibited, and enemas, which only increase the spasm, while bromides, belladonna, hydrotherapy, with general hygienic and tonic measures, give marked but only temporary relief.

VINCENT DICKINSON.

Pathology.

Some uncommon cases of congenital deformity of the limbs ('*Arch. di Ortopedia*,' 1906, No. 3, p. 200).—Those who are interested in teratology will find five cases fully reported by **D. Taddei** and **B. Prampolini** of the Royal Institute for higher studies at Florence. *Case 1.*—Congenital hypoplasia of the left femur with iliac dislocation. The left thigh was represented by a mass the shape of a truncated cone about the size of an orange attached by its base to the external lateral surface of the iliac bone. Posteriorly a prominence, easily recognised as the lower margin of the *gluteus maximus*, distant only two to three fingers' breadth from the popliteal space. Inguinal fold much accentuated. Distance between the anterior tuberosity of the tibia and the anterior superior iliac spine was 6 cm. on the left side, the same distance on the normal side being 14 cm. Left thigh in a position of flexion, abduction, and slight external rotation; the leg and foot were well formed. The diaphysis of the femur was conical in shape, 4 cm. in length; the lower epiphysis was of the same size and shape as on the normal side. Every movement was obtainable at the hip-joint, extension, abduction, and external rotation being somewhat limited. Subject was 42 days old. *Case 2.*—Total absence of left fibula, of distal third of left tibia. Total absence of foot. Defect of fingers and metacarpal bones corresponding to last two fingers of right hand; fibrous syndactylia of the index and middle fingers of the same hand. Left leg was represented by a conical stump reaching to the level of the junction of the lower and middle thirds of the right leg. This stump was normally articulated with the distal extremity of the femur, and tapered to its lower end which was irregularly rounded, having attached to it a cylindrical body $1\frac{1}{2}$ cm. in length, like a toe, which was fatty, covered with normal skin, and without any trace of nail or skeleton. The skeleton of the leg appeared to consist of tibia alone. The right hand consisted of only three fingers, thumb, index, and middle, united laterally; the phalanges and metacarpal bones seemed normal—owing to insufficient ossification the carpus could not be accurately defined, but the pyramidal, pisiform, and uncinate were prob-

ably missing. The subject was 28 months old. *Case 3.*—Hypoplasia of right humerus. Osseous ankylosis of elbow. Hypoplasia of radius; longitudinal division of right ulna. Absence of metacarpus and phalanges of fourth and fifth fingers of right hand. Hypoplasia of metacarpus and phalanges of right thumb. Palmate syndactylia of fourth and fifth fingers of left hand with fusion of corresponding metacarpus into one bone. Radiography of the right upper extremity showed that the atrophic humerus presented a bony ankylosis of its distal epiphysis with the proximal of the radius markedly short and presenting a slight diaphysial curve with ulnar convexity. Intimately united to the lower extremity of the humerus on the ulnar side and on a large base, there was a conical apophysis placed so as to form with the axis of the radius an angle of about 45° . The radiograph showed also in the forearm the existence of a slender diaphysis which was not perceptible on palpation, partly cartilaginous, which was probably the remains of a markedly hypoplastic ulna. The subject was 3 years of age. *Case 4.*—Congenital bilateral subglenoid dislocation of humerus. Bilateral hypoplasia of humerus and ulna. Bilateral absence of radius. Fusion of second and third metacarpal bones; absence of second finger of the right hand with syndactylia of the first and third fingers. Absence of first and second fingers and of corresponding metacarpus of left hand. Right upper limb—scapula normal—deltoid atrophic. Arm appeared entirely atrophic, muscular masses flaccid and little developed, diaphysis of humerus shorter than normal, but normal in thickness and shape. Head of humerus protruded into axilla and was in contact with thoracic wall at level of second and third ribs. Distal epiphysis normal in ulnar portion, epitrochlear eminence marked, radial portion atrophic, epichondilum little marked. Forearm atrophic; skeleton consisted of a single bone, conical in shape, slightly flattened from before backwards with a base corresponding to the distal extremity of the humerus, with the apex rounded corresponding to the apex of the angle that the axis of the hand forms with that of the forearm. At this point the distal apex of the bone was adherent to the skin, which was slightly umbilicated. The thumb joined by a triangular cutaneous membrane with the neighbouring finger. Hypothenar eminence normal, thenar eminence atrophic. Active movements of the arm possible in every direction. Passive movements of elbow limited; complete extension impossible, flexion up to an angle of 120° ; resistance due to ligamentous traction rather than to opposition of bony surfaces. The left upper extremity identical except in the malformation of the hand. The subject was 4 months old. *Case 5.*—Right hallux varus at right angle, with supernumerary toe adherent to internal margin. The big toe, normal in size and shape, was in a fixed position of abduction at an angle of 90° ; it was not rotated on its own axis. Adherent to its inner edge was a small toe, which seemed to consist of two phalanges, and a normal nail, in volume about quarter the size of the big toe, to which it was adherent to an extent of half the length, so that its distal extremity reached a little in front of the interphalangeal line of the great toe itself. The base of the supernumerary toe corresponded to the metatarso-phalangeal articulation; it had no independent movement, either active or passive. Active movements in the big toe seemed impossible. Passively it could be slightly abducted further; flexion was impossible and extension extremely limited. The subject was 7 months old. The authors consider that Dareste's theory offers the most satisfactory explanation of these deformities, which attributes them to the changes in the amnion. When the amniotic cavity is much reduced, it is possible that pressure is brought to bear on the

rudimentary limbs capable of producing arrest of development either of all the segments of the limb or only of some. According to the time when the mechanical cause exerts its disturbing influence on development, the various faulty conformations can be explained. If, for example, it acts when the first outlines of the limbs appear—*i. e.* in the third to fourth week of intra-uterine life a total ectromelia may ensue; if, however, it acts when the rudiments of the limbs are already pedunculated an enzimelia may occur. The theory of atavism may be logically called upon to explain some fairly frequent monstrosities, such as polydactylia, which occurs in certain lower animals, but recourse cannot be had to it in studying serious deformities which affect especially the proximal segments of the limbs, as in the cases described. These cases seem to show that Dareste's hypothesis can explain the greater number of observed facts. In one case only, the first one, could the clinical history lend itself to the hypothesis of some influence due to psychical impressions on the mother during early pregnancy; she was in a crowd of people when some revolver shots were fired, and being terrified she ran home a distance of $\frac{1}{2}$ kilom. very quickly. This case is difficult to explain on Dareste's theory since it is not easy to imagine how an amniotic compression could lead to hypoplasia of the whole diaphysis of the proximal bone of a limb and its dislocation. On the other hand, Dareste's hypothesis seems to explain adequately the lesions in the left lower limb and right hand in Case 2. Here, amniotic bands acted with an amputating effect on the distal portion of the lower limb and the ulnar portion of the hand. The association of the syndactylia does not contradict the hypothesis of the action of an amniotic band, probably due to coalescence of the fingers consecutive to the pressure caused by the band itself. Also in Case 3 we may suppose an amniotic band to have produced the amputation of the ulnar portion of the right hand and that, continuing its compressing action in a longitudinal sense on the forearm, it caused a longitudinal division of the ulnar. The two portions into which it became divided are thus represented: one, remaining *in situ*, by the thin diaphysis placed parallel to the radius, so atrophic that only radiography defined it, and the other, displaced upwards and inwards, by the conical apophysis placed obliquely in correspondence with the internal portion of the distal epiphysis of the humerus. In Case 4 the period of the production of the deformity must be referred to between the third week (appearance of the outlines of the limbs) and the fifth (complete formation); this would coincide with that of the nuchal curve and, therefore, the cause must have acted upon the radial side of the upper extremity. In Case 5 the same cause which determined the production of the supernumerary finger must also have acted in causing the deviation of the hallux. An extensive bibliography is furnished by the authors.

VINCENT DICKINSON.

Treponæma pallidum Schandinn (*Spirochæte pallida* or *Spiroæmæa pallida*) in a syphilitic foetus). ("Nota sobre a presença de Treponema Pallidum em um feto syphilitico," *Brazil Medico*, June 15, 1906).—**R. de Almeida Magalhaes**.—This pathologist finds Levaditi's original method much better than that worker's improved stain for demonstrating the presence of the parasite. In the former the tissues are stained with silver nitrate and reduced by pyrogallie acid. In the later method pyridine is added to the silver nitrate. By means of the first stain the author succeeded in exhibiting the presence of the treponæma in the following organs of a seventh-month foetus: the lungs, liver, spleen, suprarenals, and the kidneys. In the brain five typical specimens were found; this is apparently the first

occasion in which the presence of the parasite in this organ has been observed. No parasites were found in the cerebellum, medulla, bulb, or placenta.

M. D. EDER.

Acute catarrh of the small intestine in sucklings (*Habilitations-schr.*, 1906: Leipzig).—**Salge** discusses the pathology and therapeutics of acute enteritis, more especially of the ileum. The chief characteristic is the secretion of enormous quantities of fluid with marked swelling of the follicles of the intestine, injection of the mucous membrane, and occasional hæmorrhages. Clinically, the first important symptom is an alteration in the character of the motion, becoming more and more liquid, soupy, and rice-water like. Microscopically, mucus and detritus are in evidence, cellular elements are not abundant. The acidity of the motion rises enormously and may be five to nine times that of the normal motion provided that the child has been fed on milk to the last. In stopping the milk supply the reaction slowly returns to neutral and faint alkalinity. Gradually the excessive loss of fluid makes itself felt, and the child gives the impression of suffering from a profound intoxication. "The expression is anxious, void of interest and staring, the lids move only infrequently, the conjunctiva is injected, the cornea hazy and often hidden by a mucous thread. The extremities are stiff, only the arms perform slow irregular movements, convulsions may occur, and the reflexes are increased. Consciousness is profoundly affected, and subnormal temperatures alternate with feverish attacks without apparent cause. Respiration assumes the Cheyne-Stokes' type, and the cardiac power is diminished." Basing his deduction upon numerous experimental investigations Salge believes that the etiology of this condition is to be found in an abnormal development of large quantities of acids from the fats by specific bacilli (blue bacilli) in the intestine of the child. The severe toxic symptom complex is, according to his belief, the consequence of an "acidosis." A cure can, therefore, only be attained by giving a diet poor in fat.

D. O'C. FINIGAN.

Therapeutics.

A case of noma cured by injections of iodine ("Un caso de Noma curado por las inyecciones iodadas") (*El Siglo Médico*, July 14, 1906).—**Venegas**.—A girl, aged 8 years, was seen in April, 1905, suffering from noma after measles. The disease had commenced on the left side of the face: treatment at first was limited to compresses of Pot. chlorate, for the author's experience of the usual remedies was unfavourable. The disease spread rapidly, and the right side of the face was soon affected. Recalling the good effects of iodine injections in carbuncles, the author used a solution containing 4 grms. of iodine to 30 of water, with Pot. iod. qs. to make a solution. Half a gramme of this solution was injected at a distance of every 2 c.m. encircling the whole infiltrated area. A final injection was made in the middle of the cheek into the most indurated spot. Marked improvement was apparent the following day, when the injections were repeated over a less extensive area; the right side of the face was similarly treated. No further injections were necessary. On the external surface of the left cheek there formed a fluctuating spot. This was opened, giving exit to a small gangrenous fatty mass. The opening which did not communicate with the mouth was plugged with gauze impregnated with the iodine solution. Healing followed rapidly, leaving a slight cicatrix.

M. D. EDER.

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Original Articles.

ON THE ESTIMATION OF THE MORE IMPORTANT CONSTITUENTS OF HUMAN MILK.

By ALFRED W. SIKES, M.D., D.Sc.Lond., F.R.C.S., M.R.C.P.

IN those cases where young children do not gain in weight, or get on satisfactorily, there are many things which have to be considered, and a very important point is the composition of the mother's milk.

In the first two or three weeks of the life of the child a deficiency or excess of one or more of the main ingredients is more likely to interfere with nutrition than later, when he is older and less likely to be upset by a milk which varies from the normal.

Again, a milk which is deficient in its constituents and amount at the beginning of the term of lactation often remains so throughout, and an early examination will indicate the basis of feeding, before the child has been seriously affected by a defective food.

It has for some time been customary to examine milk for the percentage of fat, and sometimes for the amount of sugar, but the other constituents have been usually neglected; the former number is very useful, while the latter is rarely of any assistance, as sugar varies to no great extent in different cases. So the estimation of the proteid, the phosphorus, and the calcinm, have been neglected;

the proteid chiefly on account of the fact that anyone beginning to work on a subject such as this is apt to find the various methods of analysis recommended exceedingly confusing, and so the matter is either neglected or only rough calculations made, which are useless, or even misleading.

It is only in recent years that the importance of the phosphorus and the calcium have been recognised, and, as will be seen from the following, it is the former to which it is advisable that we should devote more attention, as the latter does not seem to vary within such wide margins in the different cases, or, so far as we can see at present, affect so much the nutrition of the child.

I have mentioned below some details of examination with regard to the proteid, the calcium, and the phosphorus. Both of the latter are contained in the proteid, as well as present in the form of simpler compounds, and it is probable that even when milk contains the average amount of either or both, the feeding power may depend on the relative amounts in the proteid and in the salts.

PROTEID.

Estimations of proteid in milk are of no value unless they are exact. The fact that so many ways have been advocated from time to time is of itself sufficient evidence of the difficulties which have to be met. It is much easier to work with the proteid of cow's milk than with that of human milk, and one has to remember in all analyses of the latter that the method employed must be accurate when small amounts are taken, as the quantity of milk which can be collected at one time is never large, and other substances have to be estimated in the same specimen.

In a paper recently published (5) I have criticised the chief methods of examination, and have given the details of a process in which the precipitating agent is alcohol. The points which had to be taken into consideration were: whether all the proteid was precipitated, whether all the other constituents of the milk were completely removed, and whether it was possible to found a simple method which was accurate with small quantities of milk.

Some milk is drawn off into a dry receptacle, and a small quantity weighed out so soon after collection that there has been no loss by evaporation. It is then precipitated and washed with hot alcohol, the separation of the proteid being effected by centrifuging. The fat and the sugar are completely removed, and there is no danger of any of the salts coming out if a small quantity of citric

acid be added before the alcohol. I will not enter into details here, as they are all given in the paper mentioned (5). In this way one proteid is weighed, not calculated, and in a pure state. The apparatus required is to be found in all laboratories; it does not require any special skill, and is not expensive, as alcohol can be obtained duty free for scientific work.

The only other way which may be considered is one which has been suggested by Sebelien (4) and others. This method is to estimate the total nitrogen in the milk, and from this to calculate the amount of proteid, allowing for the average percentage of the nitrogen which is not contained in the proteid. The nitrogen is estimated by Kjeldahl's method. For hospital work, and where a Kjeldahl's apparatus is usually kept going, the method is useful, the only objection is that one is working on averages, the average amount of the nitrogen in milk proteid, and the average amount contained in the non-proteid constituents. The amount of the proteid is usually rather under 2 per cent. It is well to remember that in the earlier days of lactation the quantity appears to be rather greater than it is later. This was noted by Adriance (1), and by Richmond (3). The percentage varies a good deal, it may be as low as 1 per cent. or even as high as 3 per cent., so it is very useful to know the amount present, as if low the deficiency can be made up artificially.

FAT.

There are several ways in use for the estimation of the fat; the more exact methods are those in which the fat is extracted by means of ether, etc., the less exact ones where it is centrifuged out after the addition of an acid mixture.

The latter is the usual way for routine examinations in hospital, as it is quite good enough for clinical purposes. The details vary with the different centrifuges, which vary in size so that different amounts of milk and reagent are required. The percentage of the liquid fat is read off on an index. In the course of many examinations at Queen Charlotte's Hospital the variation lay between 0.6 per cent. and 4.3 per cent., the average being about 2.5 per cent., but outside hospital work the average would be higher, the number usually given in the text-books being about 3.5 per cent.

It is often exceedingly helpful to estimate this constituent, and if the percentage be low it is very easy to make up for the deficiency by giving cream.

SUGAR.

The method of estimating milk sugar is too well known to waste space over here. It seems to vary very little in the different cases, and I do not regard its examination as of importance or likely to help us with the feeding of the child. It is usual to find between 6 and 7 per cent. present.

PHOSPHORUS.

Phosphorus is a substance which can be very accurately estimated and without much difficulty. In a recent paper (6) I have given the results of nearly 300 analyses. The method employed was founded on that described by Neumann (2), but somewhat modified on account of the difficulty of oxidising the fat of human milk. The total P 205 in the milk was found by evaporating a weighed quantity of milk, incinerating, and estimating the phosphorus by the use of molybdate. The non-proteid P 205 was estimated in the filtrate from the proteid which was precipitated with tannic acid mixture, and the percentage of P 205 in the proteid found by deducting the amount in the non-proteid constituents from the total P 205.

In this I found that the average amounts of P 205 present during the first fortnight after the commencement of lactation was as follows :

	Proteid. P 205		Non-proteid. P 205		Total. P 205
Primipara .	0.0160 p.c.	.	0.0129 p.c.	.	0.0297 p.c.
Multipara .	0.0183 „	.	0.0116 „	.	0.0296 „

The ratio of the proteid P 205 to the total P 205 averaged 44.6 per cent. in primipara and 38.8 per cent. in multipara. It was also found that the proteid P 205 varied little on successive days, and that this was more noticeable in multipara than in primipara. The total P 205 varied a good deal, reaching a maximum on the 9th day in primipara and on the 7th day in multipara ; this variation was due to its non-proteid constituent.

CALCIUM.

The calcium is best estimated by an oxalate method, the details of which are given in the paper referred to (6), where the results of nearly fifty examinations are mentioned. The precipitated oxalate of calcium from the incinerated milk is separated by the centrifuge and titrated with permanganate.

As already mentioned, the amount of calcium does not vary so much as the amount of phosphorus.

In a few specimens the calcium was estimated in the proteid and the non-proteid parts of the milk, and it was found in every case that by far the larger part of the calcium was combined with the proteid.

The average amounts of P 205 and calcium are given in the following table. A number omitted indicates that the number of analyses on that day were too few to draw an average; so that when an estimation of the P 205 or the calcium is made on a certain day after delivery, a reference to the table will show if it is above or below the average for that day; it is more accurate to work in this way than on the combined average.

In the following table a list of the cases is given from the mothers of which the milk was taken. The reference numbers are the same as in the paper mentioned (6); some cases are missed as in these the milk examined came from the hospital district where notes of the weights were not made.

The difference between the birth weight and the last weight before leaving the hospital is shown in ounces as a plus or minus number. One finds with children born in hospital, the mothers of which are often in poor condition, that a case has done well if at the time it is sent out (about the fourteenth day) it is at, or above, the birth weight.

It is also indicated in the table whether the child has been fed on the breast or on the bottle as well.

The actual percentage of the P 205 and of the calcium is not given, as it can be seen in the paper referred to (6); at present the important point is whether these numbers are above or below the average on the day on which the milk was taken; and in the third and fourth columns these variations are given. Where there was more than one analysis of the phosphorus or calcium in the same case the average is taken. The relation of the phosphorus to the weight of the child is more easily seen in Figs 1 and 2, where they are arranged in the form of curves.

PRIMIPARA.

Ref.	B. Breast. B ¹ . Bottle.	Gain or loss in weight in ounces.	Variations of P 205 and Ca. from the average.	
			P 205.	Ca.
1 .	B and B ¹	+ 1	+ 0.0050	+ 0.0041
2 .	B	+ 10 $\frac{1}{4}$	+ 0.0053	—
3 .	B	+ 5 $\frac{1}{4}$	+ 0.0014	- 0.0017
4 .	B	- 2 $\frac{3}{4}$	+ 0.0006	+ 0.0032
5 .	B	+ 1 $\frac{3}{4}$	- 0.0007	—

Ref.	B. Breast. B ¹ . Bottle.	Gain or loss in weight in ounces.	Variations of P 235 and Ca. from the average.	
			P 205.	C 2.
6 .	B and B ¹	+ 5 $\frac{1}{4}$	- 0.0061	—
7 .	B and B ¹	+ 10 $\frac{1}{4}$	- 0.0055	+ 0.0028
8 .	B	- $\frac{1}{2}$	+ 0.0101	—
10 .	B	+ 10 $\frac{1}{4}$	+ 0.0029	+ 0.0076
11 .	B and B ¹	- $\frac{3}{4}$	+ 0.0069	- 0.0006
12 .	B and B ¹	- 7 $\frac{1}{2}$	- 0.0021	—
13 .	B	+ 10	+ 0.0140	+ 0.0035
14 .	B	+ 3 $\frac{1}{2}$	- 0.0037	+ 0.0009
16 .	B	- 1 $\frac{3}{4}$	- 0.0075	- 0.0090
17 .	B	- 5 $\frac{1}{2}$	- 0.0088	—
18 .	B and B ¹	- 8 $\frac{3}{4}$	- 0.0062	—
19 .	B	+ 1 $\frac{1}{2}$	+ 0.0044	+ 0.0021
20 .	B	+ 5	- 0.0090	—
21 .	B	+ 12	- 0.0017	- 0.0011
22 .	B	- $\frac{1}{4}$	+ 0.0039	—
23 .	B and B ¹	- 1 $\frac{1}{2}$	- 0.0074	- 0.0054
24 .	B and B ¹	- 8 $\frac{1}{2}$	+ 0.0027	—
25 .	B	- 3 $\frac{3}{4}$	+ 0.0018	—
26 .	B	+ 1	+ 0.0096	—
28 .	B and B ¹	- 1	- 0.0074	+ 0.0081
29 .	B and B ¹	- 7	+ 0.0067	—
30 .	B	+ 15	+ 0.0004	- 0.0043
31 .	B	+ 2	+ 0.0020	—
33 .	B and B ¹	- 4 $\frac{1}{4}$	+ 0.0002	—
34 .	B	+ 1 $\frac{3}{4}$	- 0.0012	—
35 .	B and B ¹	+ $\frac{1}{2}$	- 0.0029	—
36 .	B	+ 5 $\frac{3}{4}$	+ 0.0024	—
37 .	B	+ $\frac{1}{4}$	+ 0.0104	—
38 .	B	+ 7 $\frac{1}{2}$	+ 0.0006	—
39 .	B	+ 4 $\frac{1}{2}$	+ 0.0070	—
40 .	B	- 3 $\frac{1}{2}$	+ 0.0038	—
41 .	B	+ 9	+ 0.0046	—
43 .	B	+ 3 $\frac{1}{2}$	—	- 0.0065
44 .	B	+ 12 $\frac{1}{2}$	—	+ 0.0116
45 .	B	+ 5	—	- 0.0011
46 .	B	+ 5 $\frac{1}{2}$	—	- 0.0002
47 .	B	- $\frac{1}{4}$	—	- 0.0180
48 .	B	+ 3 $\frac{1}{2}$	—	+ 0.0045
50 .	B	+ 6	—	- 0.0002
52 .	B	+ 11	—	+ 0.0029

MULTIPARA.

Ref.	B. Breast. B ¹ . Bottle.	Gain or loss in weight in ounces.	Variations of P 205 and Ca. from the average.	
			P 205.	C 2.
54 .	B .	- $\frac{3}{4}$	- 0.0052	—
55 .	B .	+ 13	- 0.0032	+ 0.0007
56 .	B and B ¹ .	- $4\frac{1}{2}$	- 0.0041	—
57 .	B .	+ 7	- 0.0004	- 0.0029
59 .	B .	+ $10\frac{1}{2}$	+ 0.0035	+ 0.0007
60 .	B .	+ $15\frac{1}{2}$	+ 0.0027	+ 0.0007
61 .	B .	+ 14	+ 0.0065	+ 0.0007
64 .	B and B ¹ .	- $3\frac{1}{2}$	- 0.0060	—
66 .	B .	+ $\frac{1}{4}$	+ 0.0017	—
67 .	B and B ¹ .	- $\frac{1}{4}$	- 0.0003	+ 0.0002
70 .	B .	- $2\frac{1}{2}$	- 0.0016	—
71 .	B .	- 3	+ 0.0026	—
72 .	B .	+ $8\frac{1}{2}$	- 0.0010	—
73 .	B .	- $2\frac{1}{2}$	- 0.0018	—
74 .	B .	+ 6	+ 0.0019	—
75 .	B .	- $2\frac{3}{4}$	+ 0.0026	—
76 .	B .	+ $13\frac{3}{4}$	- 0.0032	—
77 .	B .	+ $1\frac{1}{4}$	+ 0.0014	—
78 .	B .	+ $3\frac{1}{4}$	—	+ 0.0027
79 .	B .	+ $1\frac{3}{4}$	—	0.00

In the following figures the dotted line shows the gain or loss in the weight of the child and the continuous line the percentage of P 205 above or below the average.

Day after delivery.	Percentage of P 205.		Percentage of calcium.	
	Primipara.	Multipara.	Primipara and multipara.	
3 .	0.0232	0.0207	0.0277	
4 .	0.0213	0.0271	0.0293	
5 .	0.0236	0.0325	0.0306	
6 .	0.0302	—	0.0314	
7 .	0.0338	0.0420	0.0308	
8 .	0.0325	—	—	
9 .	0.0397	0.0340	0.0271	
10 .	0.0327	0.0298	0.0303	
11 .	0.0369	0.0252	0.0359	
12 .	0.0353	0.0301	0.0339	
13 .	0.0252	0.0257	0.0269	

The average percentages of P 205 and calcium in human milk, taken from the paper referred to (6).

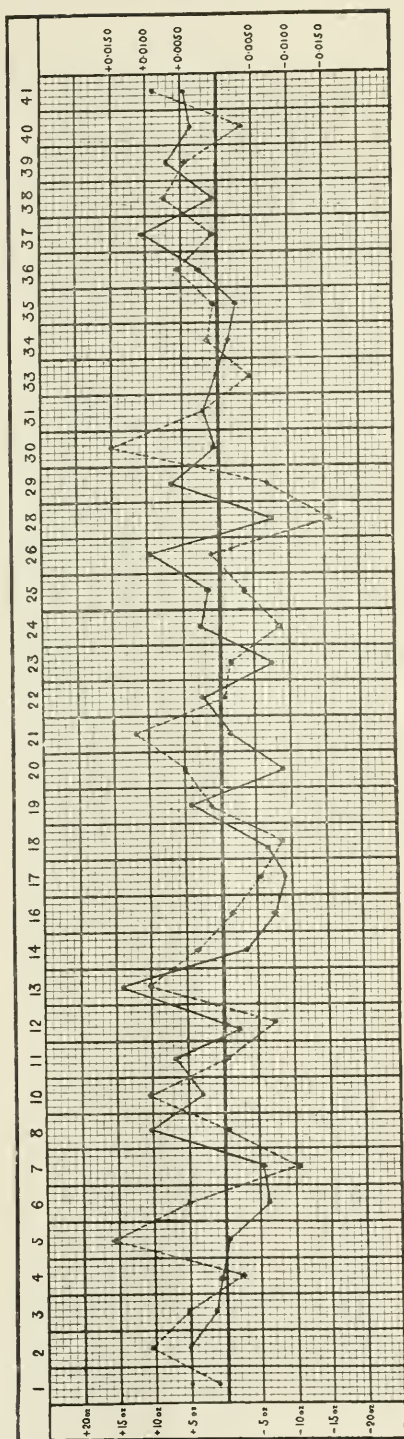


FIG. 1.—Primipara.

On examining these figures it will be seen that *generally when the P205 is at or above the base line the child has done well.* Of course, the rule does not hold in all cases, as there are many other points which come in besides the amount of the phosphorus in the milk. The mother may have had a difficult confinement, or been in bad condition when she came into hospital, or the child may have had some birth injury, intestinal disturbance, etc., etc. One must also remember that a large child will often lose a great deal, and take longer in reaching the birth weight. In other cases one sees that the variations are not large, and if the P 205 be low, and yet the child has done well, there may have been a good supply of milk. In some cases, too, the bottle has been used to supplement the mother's milk. On the whole the above rule holds good in more cases than one anticipated, considering there are so many other factors which may influence the weight.

In *primipara* the chief exceptions are 6, 14, 20, 24, 25, 29, and 40. In No. 6, although the P 205 was low, the bottle was used as well and the child had gained 5 oz. when sent out, in No. 29 the child could not take the breasts, so the milk had to be drawn off and given per bottle, made up with one in

three cow's milk. No. 40 was a 10-lb. child and had a right parietal hæmatoma, so that although the P 205 was above the normal, the child had not got up to the birth weight at the time of going out. There are also some lesser exceptions. In No. 4 the infant was jaundiced and this apparently interfered with its progress, although the P205 was above the normal. No. 5 was a very small child and was well above the birth weight at the end of the time; the P 205 here was practically normal. No. 33 was bottle-fed as well, and yet did not gain weight.

In *multipara* the only marked exceptions are 55 and 76. In each case the child gained well although the P 205 was below the normal. In 71 there was some loss although the P 205 was good; this was due

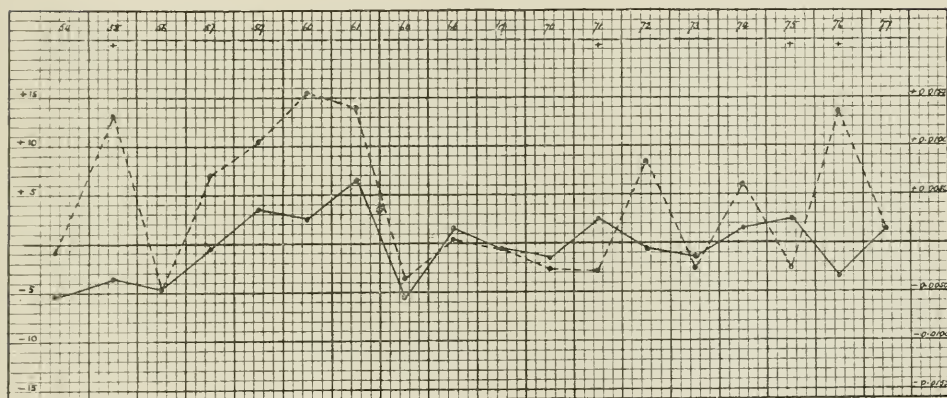


FIG. 2.—*Multipara*.

to the high birth weight, viz. 9 lb. In 71 the loss of weight may be accounted for by intestinal disturbance, as at one time there were watery green motions.

I do not think that any generalisations can be made from the amount of calcium, the number of cases is too small. The quantity of milk required for the examination of the different constituents is of importance, and I have below indicated about the minimum amount.

For the estimation of the fat	.	.	15 c.c. about
„ „ „ proteid	.	5 „ „	
„ „ „ P205	.	10 „ „	
„ „ „ calcium	.	10 „ „	

Total minimum amount required 40 c.c.

I have not mentioned sugar in the above as I do not look upon

its estimation as being essential. I think it is advisable in every case where a child in the first fortnight is not getting on well, and there is no obvious cause, that an analysis of the milk should be made.

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THE COINCIDENCE OF DISEASES IN CHILDREN.

By JOHN ALLAN, M.B., Ch.B.Edin.

IN the January number of the BRITISH JOURNAL OF CHILDREN'S DISEASES of this year notice was drawn (I think rightly) to the scant attention that is given to the coincidence of diseases in children. The importance of the subject can hardly be over-estimated, and it is one which merits close study. The occurrence of two diseases may render difficult the diagnosis, may alter the prognosis, and may modify the treatment.

The following two cases which came under my notice recently are so interesting that I venture to think them worthy of record.

Case 1 was that of a child in which right diaphragmatic pleurisy and appendicitis occurred simultaneously. The history was as follows: A boy, aged 12 years, was brought up to the out-patient department of the Royal Alexandra Hospital for Sick Children, Brighton, about the beginning of February of this year, and he complained of pains in the stomach, and he stated that his appetite was poor. An alkaline stomachic mixture was prescribed. He did not present himself again until March the 1st, 1906, when his condition was so serious that he was admitted as an in-patient. During the previous three weeks he had suffered from vague abdominal pains, which were apparently not very severe, as he was able to play with other boys. On February the 28th he was sick in the morning, and the abdominal pains were more severe, but he was sent to school. He was sick again that evening and vomited, and he could not rest

during the night. On the following morning he walked up to the hospital with difficulty, and was at once admitted. On his arrival he was in a very collapsed condition. The pulse was fast and feeble, and could hardly be felt. The temperature was subnormal. The bowels had been very constipated, and according to the statement of the mother he had had no action since February the 26th. After the patient was got to bed his pulse improved, and was found to be regular and of fair volume. The temperature was 101° F.

On examination the following conditions were noted: *Alimentary system*—The tongue was furred and dirty, and the breath was foul-smelling. No sickness or vomiting took place. On inspection of the abdomen movement was found to be fairly good, and there was no obvious fulness. He could not bear the abdomen to be touched, and attempts to palpate it were resisted. It was found to be resistant all over; if anything, more in the epigastric region and right side of abdomen. Percussion of the abdomen was painful—no dull area could be detected. *Respiratory system*—He complained of pain low down on the right side of the chest, especially along the line of the diaphragmatic pleura. On auscultation rhonchi were heard at the base of the right lung, but no friction could be detected. *Urinary system*—The urine was acid in reaction, having a specific gravity of 1020, and contained no abnormal constituent. There was nothing of note in the other systems.

Treatment and progress.—Hot fomentations were applied to the abdomen, and a mustard leaf was applied to the lower part of the right side of the chest. Milk and lime-water were given for nourishment. A simple enema was given, which had a good result, the motion being constipated. He had a fairly good night, and slept at intervals. On the following morning another enema was given with satisfactory results, a little mucus being passed in the stools. Examination of the abdomen now revealed diminished movement in the right iliac fossa, and very slight dulness in that region could be made out on percussion. Palpation revealed general abdominal tenderness, but the pain was most acute in the right iliac region. The temperature remained about the same, and at ten o'clock on March the 2nd was 100·4° F. The pulse was quicker and more feeble.

Examination per rectum and bimanually confirmed the above facts. A somewhat indefinite fulness could be made out in the right abdomen with the finger in the rectum. Distinct friction could be heard on auscultation over the right diaphragmatic pleura. After consultation, it was decided to operate, as the pulse was in-

creasing in frequency and his condition generally was getting worse.

Operation.—At four o'clock in the afternoon an oblique incision was made in the right iliac fossa, rather higher up than usual. On opening the peritoneum the bowel appeared healthy, but on deeper exploration pus was found. The appendix was found lying upwards towards the diaphragm, and was perforated and adherent. Owing to the patient's condition it was not deemed advisable to attempt to remove the appendix, so the cavity was washed out with normal saline solution, and a drainage tube put in. The patient took the anæsthetic (chloroform) fairly well, but by the time the operation was completed he was very feeble, but improved after a hypodermic injection of strychnine had been administered. The patient had a restless night and complained of intense thirst, this distressing complication being alleviated to some extent by the administration of saline solution per rectum. He was given nothing by the mouth except sips of hot water occasionally. On the day after the operation he was put on milk and lime-water, as no post anæsthetic sickness supervened. He was also given a mixture containing strychnine and strophanthus. Large quantities of pus discharged from the wound, which had to be dressed twice a day for about ten days, the pus, however, never being fecal in character. The boy was not an ideal patient, as he had a tendency to interfere with the dressings, and in other ways behaved in a manner not conducive to speedy recovery. During convalescence, which was somewhat prolonged, nothing of importance occurred. The physical signs in the chest persisted for a few days and then gradually subsided. The drainage-tube was removed at the end of fourteen days, and the wound was then drained with gauze and allowed to heal from the bottom. His diet was cautiously increased, and at the end of three weeks he was having practically ordinary food. During convalescence he was given a mixture of cod-liver oil and Parrish's food, and he was discharged on April the 19th, 1906.

Before dismissing the case there is an interesting sequel to be related. He was re-admitted to hospital on May the 8th, 1906, with a sinus discharging from the old scar. It appeared that a younger brother had kicked him on the right side of the abdomen, and a day or two afterwards the wound broke down. On admission his temperature was 99° F., but his condition generally was good. A probe could be inserted into the wound to the extent of three inches. He was kept under observation for a day or two, and the wound was carefully packed and dressed. As the wound showed

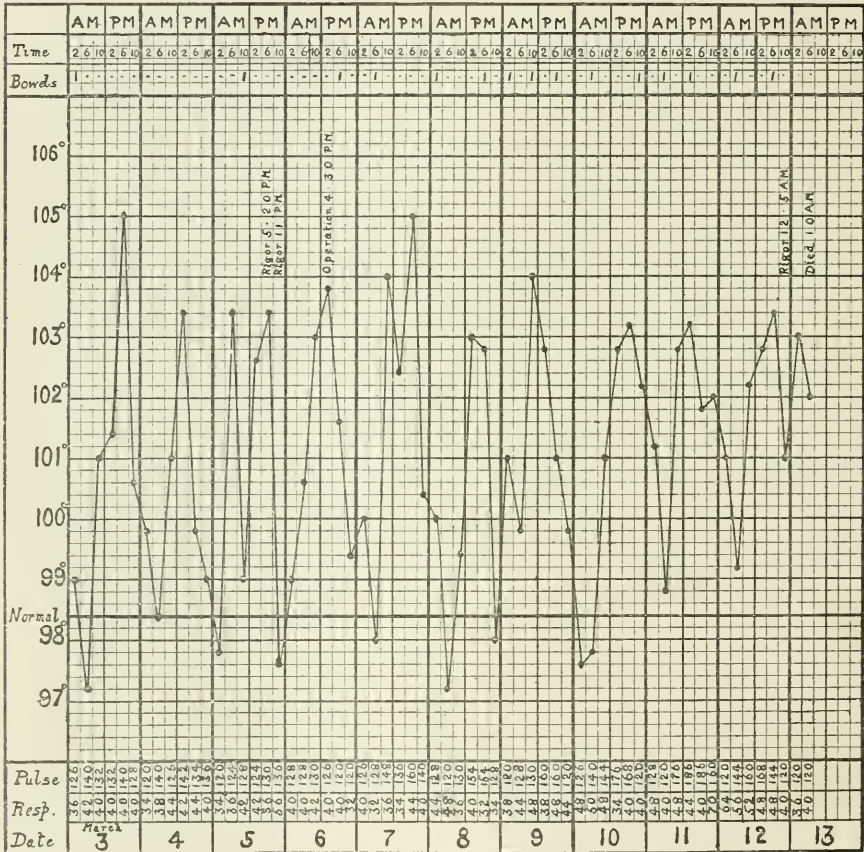
no tendency to heal, it was decided to open up the wound and remove the appendix. All persuasion, however, could not obtain the father's consent to this procedure. Liberty to scrape the sinus could only be obtained. On May the 11th, therefore, the sinus was freely laid open, thoroughly scraped, swabbed with pure carbolic acid and a gauze-drain inserted. It was allowed to heal from the bottom, and he was discharged on June the 25th. He has remained in good health since.

The second case was that of a little girl in which tubercular disease of the knee-joint and a deep mastoid abscess occurred. Difficulty in diagnosing the latter condition occurred, which may at first not be clear, but as the case is related the difficulties experienced will become apparent.

E. A—, a little Italian girl, aged 7 years, was brought up to the Children's Hospital, Brighton, by her mother, on February the 21st, 1906, who stated that the child had fallen down several steps and injured her left knee. She had been seen by a private practitioner, who gave as his opinion that there was a fracture of the femur at the knee-joint. The knee was so tender that it was found impossible on examination to confirm or dispute this diagnosis, so the child was admitted for observation. Later in the day the knee was thoroughly examined under an anæsthetic, but no fracture could be detected. The previous history was important. This knee had previously been tubercular, and the child had been an in-patient in the hospital several times on that account. By dint of careful fixation in a Thomas's knee-splint, rest, and general hygienic measures the condition had been apparently cured, and the child's general health had been much improved by a sojourn of some months in Italy during the previous year. At the time of the accident she was able to run about, and had a very slight limp. On admission the knee was greatly swollen and excessively tender. The treatment adopted was to put it in a posterior splint with a foot-piece, the splint extending well above the knee. Scott's dressing was applied to the knee, but this was so badly borne that on the following day lead and opium fomentations were substituted for it. For the next three days her condition remained practically *in statu quo*. On the evening of February the 25th the temperature, which had been slightly below normal, suddenly rose to 103° F., and during the next four days it varied greatly, the highest temperature recorded being 101·6° F. It was thought that the injury had made acute the condition which had been dormant, and the knee was very suggestive of acute tubercular mischief. Operative interference was not considered necessary.

On March the 3rd the temperature went up to 105° F., and its behaviour during the next ten days is graphically represented in the accompanying chart (Fig. 1). The knee, though certainly in an acnte state, did not strike one as wholly explaining the child's serious condition. In trying to ascertain facts we were confronted

FIG. 1.



with the difficulty of not being able to get any information from the child, as she was very backward for her age, and, though she had lived nearly all her life in England, she could hardly speak a word of English. Even with the help of the mother, whom we got up to speak to her in Italian, we could not get any definite information, and so, finally, we had to rely on what could be ascertained by

objective examination. It was noticed about this time that she frequently put her hand up to her left ear, as if she were in pain. She occasionally gave a sharp cry; but whether that was due to pain in the knee or pain in the head could not be definitely made out. Both these regions were exquisitely tender to the touch. The painful region round the left ear was somewhat extensive, and some idea of the extent can be had by referring to Fig. 2, the shaded parts representing the tender areas, the more deeply-shaded parts indicating greater pain, and the point of maximum intensity before operation being shown by the cross.

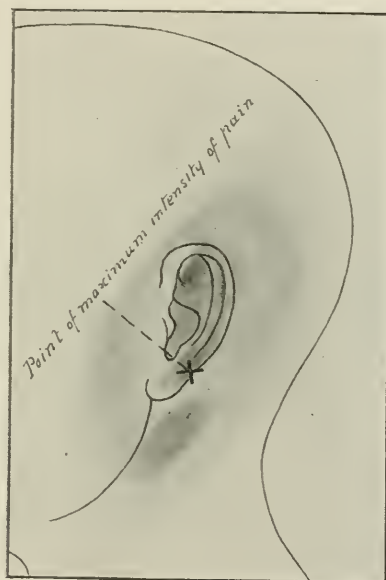


FIG. 2.—Shaded parts represent areas of tenderness.

There had been no discharge from the ears since the child was admitted to the hospital, but on questioning the mother it was ascertained that the child was subject to attacks of otorrhœa, and that there had been discharge from the left ear some weeks previously, but this had stopped a few days before her accident. Previous attacks had, apparently, not been accompanied by much pain.

About this time the breathing became very rapid, and was at times laboured. Examination of the chest proved negative. This state of affairs persisted to the end, but, though frequently examined, no abnormal physical signs could be detected in the chest. The

urine contained no abnormal constituent, and the cardiac system was healthy.

There was, then, just this localised area of tenderness round the left ear. There was no head retraction, and the child permitted movement of the head so long as the tender area was not touched. There was no ptosis or strabismus. The pupils were regular and moderately dilated, and responded to the light and accommodation tests. The eyes were twice examined with the ophthalmoscope, but no optic neuritis could be seen. The diet, which had been ordinary diet for the first few days, was reduced to milk only when the temperature began to swing, and till the end she was kept on fluid diet with a little custard occasionally.

During the next two days no change took place. On March the 5th, about half-past five at night, she had a rigor, and at eleven o'clock she had another. There was now one spot behind the ear which was specially tender to the touch, and this point of maximum intensity of the pain is indicated by the cross in Fig. 2. There was general tenderness all over the body, especially about the chest. There was no vomiting.

On March the 6th, after consultation, it was decided to operate, a provisional diagnosis of thrombosis of the lateral sinus having been made. In the afternoon a curved incision, about 3 in. in length, was made behind the ear over the painful area. The periosteum was reflected and the bone carefully removed with hammer and chisel. When the lateral sinus was exposed it was found to pulsate, and it did not feel hard or thrombosed. On exploration a deep mastoid abscess was found, and a small quantity of thick fœtid pus was evacuated. The cavity was syringed out with sterilised water and packed with gauze.

From the temperature chart it will be seen that the operation had no effect on the temperature. The wound was dressed next morning, and the dressings were saturated with fœtid pus. After being douched out with sterilised water fresh packing was put in, and for the next three or four days the wound was dressed twice daily. The discharge got less and became less offensive, but the temperature continued to swing. The child had become so weak that further operative procedure was contra-indicated. During this time the knee remained in an acute condition. The slightest movement caused the most excruciating agony, but there was no indication for incising the joint. The child gradually got weaker, and at 12.5 a.m., on March the 13th, she had a rigor. Death took place at ten o'clock that morning.

Necropsy.—After much difficulty permission to examine the head was obtained. There were found some localised lepto-meningitis, commencing suppurative phlebitis of the left lateral sinus, and a little pus at the “torcular.” There was no abscess in any part of the brain substance. The mastoid antrum was found to have been thoroughly cleared out. I think it a pity that the necropsy was such a limited one, as I should have liked to have had an exhaustive post-mortem examination, and especially to have seen the state of affairs in the lungs and the left knee-joint. It is difficult to account for the accelerated respiration and laboured breathing unless there had been some pulmonary complication. It is hard to believe that the general condition would cause it. Dr. J. Stoddart Barr has published a case of septic lateral sinus thrombosis complicated by septic infarctions in the lung, but in that case there were some physical signs in the chest (*‘Lancet,’* March the 24th, 1906). In this case there were no physical signs, and I think that may be taken as correct from the fact that three medical men independently went over the chest thoroughly, and could find nothing. As regards the knee it is hard to reconcile the persistence of the acute symptoms there with simple injury to the knee, because with about three weeks’ rest-treatment that should have shown signs of improvement. Whether there were “starting” pains could not be ascertained, for the child would not say whether her sharp cries were on account of pain in the knee or pain in the ear. Osteomyelitis of the lower end of the femur is, I think, negatived, because the swelling remained limited to the knee, and there was no pain or swelling along the shaft of the femur. The real cause will ever remain hypothetical; but when one considers the previous history it is reasonable to suppose that the injury may have lighted up the old disease.

The case is one of great importance, and throughout it forms an interesting clinical study. It brings forcibly before one what serious consequences may arise from what to the lay mind seems such a simple thing—namely, chronic otorrhœa. It also shows that one should approach each case with an unbiassed mind—otherwise one may fall into error, and perhaps be misled by facts which are obvious, and at the same time overlook symptoms which are more or less masked. In children, especially, is this power of keen observation and unbiassed judgment of such great value, for in them we have to rely to a greater or less extent on what we can make out by objective examination.

In conclusion, I beg to tender my best thanks to Mr. H. H.

Taylor, under whose charge the cases were when in hospital, and through whose kindness and courtesy I am permitted to publish them.

LOBAR PNEUMONIA AS A COMPLICATION OF DIPHTHERIA.

By J. D. ROLLESTON, M.A., M.D.Oxon.,

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Asylums Board.*

THE occurrence of lobar pneumonia in the course of diphtheria has always been regarded as an exceptional event. The earlier writers, such as Barthez and Rilliet, and Cadet de Gassicourt, stated that the pneumonia which complicated diphtheria was always of a lobular form. Sanné (1877) is the only authority who has declared that this complication is other than a rarity. It occurred in 48, or 3·2 per cent., of his 1500 cases of diphtheria. Most of these cases were laryngeal. Only four recovered. This high mortality was explained by the co-existent bronchial lesions. In sixteen cases there was membranous bronchitis, in ten cases there was co-existent broncho-pneumonia.

A. Broca, writing in 1885, thinks that Sanné exaggerated the frequency of lobar phenomena in diphtheria, and that many of the cases described as lobar were really broncho-pneumonia. On the other hand, so far from disputing the occurrence of lobar pneumonia in diphtheria, he relates a case of his own in a girl, aged 13 years, who developed diphtheria three weeks after measles. Laryngeal symptoms occurred, necessitating tracheotomy. Lobar pneumonia supervened, and later paralysis of the palate and cycloplegia. Ultimately recovery took place. Broca also quotes a case of Lange in a girl, aged 16 years, in whom death occurred on the sixth day. Post mortem, in addition to membrane in the pharynx and bronchi, right lobar pneumonia was found. Bokai, in 1889, records the case of a boy, aged 8 years, who after tracheotomy developed right hemiplegia and three successive attacks of lobar pneumonia. The lung condition was regarded by Bokai as purely accidental.

Recent writers, *e. g.* Ruault (1899), Goodall (1900), Northrup (1902), Deguy and Weill (1902), Sevestre and Martin (1904), Biernacki (1904), Welch and Schamberg (1905), and Osler (1905),

are agreed as to the rarity of secondary lobar pneumonia in diphtheria.

The statistics of the Metropolitan Asylums Board hospitals for the last seven years out of an annual average of 6470·7 diphtheria patients give an average percentage of 0·38 cases of lobar pneumonia, or a total of 167 cases, as compared with an average percentage of 1·12 for broncho-pneumonia, or a total of 507 cases during the same period. Incidentally it may be remarked that diphtheria in this respect offers an interesting contrast with enteric fever, in which the incidence of lobar and broncho-pneumonia is reversed. Thus the average percentage incidence of these two complications of enteric fever at these hospitals during the same period of seven years has been 2·33 and ·98 for lobar and broncho-pneumonia respectively.

The present paper is based on observations made on 1000 consecutive cases of diphtheria that have been under my care at the Grove Hospital in the course of the last four years. Lobar pneumonia occurred in only seven cases (0·7 per cent.). All the patients were children, their ages ranging from $1\frac{1}{2}$ years to 7 years. As 266 of the total number were above the age of 7 years childhood appears to be a predisposing factor; three of the patients were males, four were females. With two exceptions, which occurred in June and July respectively, the cases were all met with in the winter months, *viz.* two in December and one in each of the months of November, January, and February. Only three (42·3 per cent.) were cases of laryngeal diphtheria, two requiring tracheotomy; of the remainder three were of a severe faucial type, and one, the most typical, was a mild faucial case. In each of the three severe faucial cases some form of paralysis occurred. It is noteworthy that in fifteen cases of broncho-pneumonia that occurred among my 1000 cases nine, or 60 per cent., were found in laryngeal cases, seven of which were tracheotomised.

Date of onset.—With one exception, which took place in the ninth week, all the cases arose within the first ten days of the disease. In three cases the pneumonia developed before the throat became clean. In two cases the membrane disappeared from the throat on the same day as the pneumonia occurred. In the remaining case the throat had already been clean six days.

Mode of onset.—In three the onset was abrupt, occurring after the subsidence of the initial pyrexia; in the remaining four the initial pyrexia had not yet subsided, but was increased by the supervention of the lung condition.

Site.—The pneumonic process showed a predilection for the right

lung, especially for the lower lobe. In five the right lower lobe alone was affected, in one the lower lobes of both lungs, and in one the right upper lobe alone.

Symptoms.—Vomiting occurred in one case. Pain was complained of in two cases, in one in the chest, in the other in the abdomen. Nocturnal delirium was noted in three cases. Herpes labialis was seen in three cases. A short cough with an expiratory grunt was present in all. Otherwise the respiratory symptoms were not obtrusive, being not out of proportion to the temperature as is the rule in broncho-pneumonia.

The duration of the pyrexia varied from four to twelve days, the average time for the seven cases being 6·2 days. In one case only the temperature fell by crisis, in the rest defervescence occurred by lysis. The striking anomalies of the temperature curves which are seen in the annexed charts are to be explained partly by the influence of the primary disease, partly by the age of the patients.

The influence that a primary disease has on the course of pneumonia complicating it, was well known to the earlier writers. Thus Wunderlich, writing in 1871, says: "Secondary croupous pneumonia sometimes follows an identical course with that of the primary, but in other cases exhibits more or less deviations from such a course." Similar remarks were made by Rilliet and Barthez in 1884, and authorities of to-day hold the same language. Thus Osler says: "The symptoms of the secondary pneumonias often lack the striking definiteness of the primary croupous pneumonia."

The physical signs were, as a rule, much more obvious than the symptoms, thus offering a striking contrast to broncho-pneumonia, in which, especially after tracheotomy, the presence of consolidation of the lung may often be difficult to determine. In all the cases there was a marked absence of concomitant bronchitic or pulmonary lesions, to the presence of which was due the fatality of Sanné's cases. Pleurisy was present in three cases, one of which (Case 5) subsequently developed empyema.

Diagnosis.—The initial pyrexia of diphtheria is usually of short duration, and rapidly tends to fall after the injection of antitoxin. A sudden rise as shown in Charts 1, 5 and 6, or an exacerbation of the initial pyrexia (Charts 2, 3, 4, 7) should therefore draw special attention to the condition of the lungs.

The occasional though rare occurrence of lobar pneumonia in measles, which has been noted by Broca and Sanné, and more recently by von Jürgensen and Bottomley, affords an interesting parallel. Jürgensen says that the whole question is yearly becoming

more and more complicated, and suggests that the diagnosis of lobar pneumonia can only be settled by the absence of a wide-spread capillary bronchitis. It has already been stated that there were no signs of concomitant bronchitis in my cases.

Prognosis.—How much more favourable is the prognosis of lobar pneumonia as compared with broncho-pneumonia is illustrated by the fact that whereas none of the seven cases proved fatal, only three of the fifteen cases of broncho-pneumonia among my 1000 cases of diphtheria recovered, thus constituting a mortality of 80 per cent.

Treatment.—No special treatment was required differing from that employed in primary lobar pneumonia.

Pathogeny.—The rarity of lobar pneumonia in diphtheria suggests that its occurrence is but a fortuitous one. Baginsky in particular regards it as an entirely accidental complication. Against this view must be weighed (1) its predilection for children, (2) its occurrence at an early stage of the disease.

Both these facts seem to indicate something more than a mere coincidence. The absence of fatal cases prevents me from suggesting a more satisfactory reply.

It is well known that children as a rule have no sputum, and even if it be obtained, as Variot suggests, by titillation of the fauces, the mere presence of diphtheria bacilli in such a specimen would by no means indicate that the pneumonia was due to the Klebs-Loeffler bacilli.

The characteristics of lobar pneumonia as a complication of diphtheria may be summarised under the following four heads:

(1) Lobar pneumonia as a complication of diphtheria is a rare event.

(2) It is not, like broncho-pneumonia, the special appanage of laryngeal cases.

(3) It occurs only in children.

(4) It resembles the primary lobar pneumonia of children in being atypical in the following respects: absence of expectoration and of marked respiratory trouble, in an occasionally remittent or even intermittent pyrexia, in the frequent occurrence of lysis, in its relative benignity, and absence of any sequelæ except empyema.

CASE 1.—A boy, aged 4 years, was admitted October the 8th, 1903, on the fifth day of an attack of severe faucial and nasal diphtheria. Eighteen thousand units of antitoxin were injected on admission. The throat became clean on the eighth day. Albuminuria was

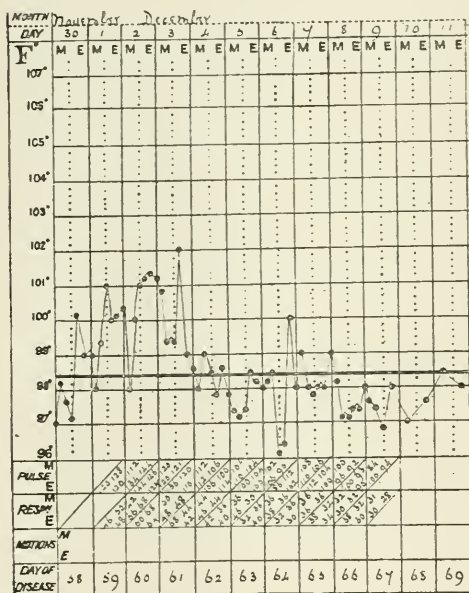
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present from admission till the ninth day. Palatal palsy and cycloplegia developed on the fourteenth day and lasted till the sixtieth.

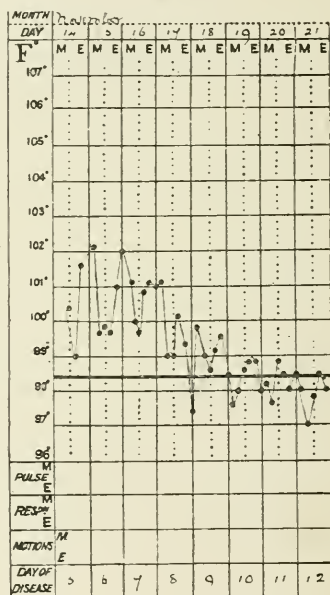
Catarrhal jaundice occurred on the sixteenth and lasted till the twenty-first day of the disease.

The temperature, which was 101° F. on admission, reached normal the following day, and remained so till November the 30th, when it rose to 100·2° F. On December the 1st, dulness, bronchial breathing, and bronchophony were detected in the lower part of the

CASE 1.



CASE 2.



right axilla and at the right base. The child passed a restless night and was delirious. The next day the signs in the chest remained the same. The cheeks were flushed, there was a short hard cough and marked deficiency of chlorides in the urine. The following evening the temperature fell abruptly. The signs in the chest gradually cleared up, so that by December the 11th nothing abnormal in the lungs could be detected. The boy was discharged in good health on December the 21st, the seventy-ninth day of disease.

CASE 2.—A girl, aged 7 years, was admitted on November the

14th, 1903, on the fifth day of a severe attack of faucial diphtheria. Eighteen thousand units were injected on admission and on each of the two following days, and she was given five minims of adrenalin chloride solution four hourly. On November the 16th, the seventh day of her disease, a patch of impaired resonance with bronchial breathing was found in the right lower lobe. Cough was troublesome and there was some cyanosis. On November the 18th the membrane had left the throat. The temperature subsided by lysis to normal on November the 20th, and the following day the lungs were clear. Albuminuria lasted from the tenth to the twentieth day, and paralysis of accommodation from the twenty-eighth to the fifty-second day. The patient was discharged in good health on January the 25th, 1904.

CASE 3.—A boy, aged 7 years, was admitted December the 14th, 1903, on the fourth day of a very severe attack of faucial and nasal diphtheria. Twenty-one thousand units were injected on admission and again on the following day. He was given five minims of adrenalin solution four hourly. On December the 15th he was restless in his sleep and his respiration was rapid. There was a short cough, but not frequent nor troublesome. The cheeks were flushed and there was some working of the *alae nasi*. Dulness, bronchial breathing, and bronchophony were found at the right base. There was a marked deficiency of chlorides in the urine. The next day the right base was more dull.

The following day the temperature became practically normal. There was no longer any bronchial breathing nor bronchophony and many *redux* crepitations were heard. By the 23rd the lungs were normal.

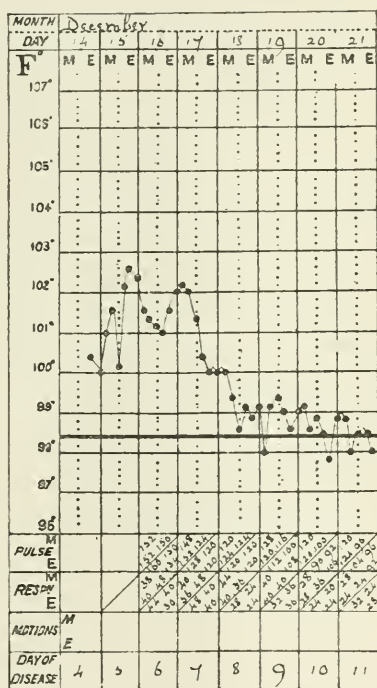
Albuminuria was present during the first three weeks of the disease and paralysis of accommodation was present from the thirty-first to the fifty-first day. No other complications developed, and the boy was discharged in good health on February the 4th, 1904.

CASE 4.—A girl, aged $1\frac{1}{2}$ years, was admitted February the 26th, 1904, on the eighth day of an attack of mild faucial but severe laryngeal diphtheria. Eighteen thousand units were injected on admission, and again on the following day. Tracheotomy was performed under chloroform on February the 27th. The same evening the relief which had followed the operation was replaced by restlessness. The tube was removed and after rather prolonged exploration of the trachea a large branching cast was expelled. On February the 28th the throat became free of membrane. Respiration was still rapid and there was slight impairment of the percussion note between the

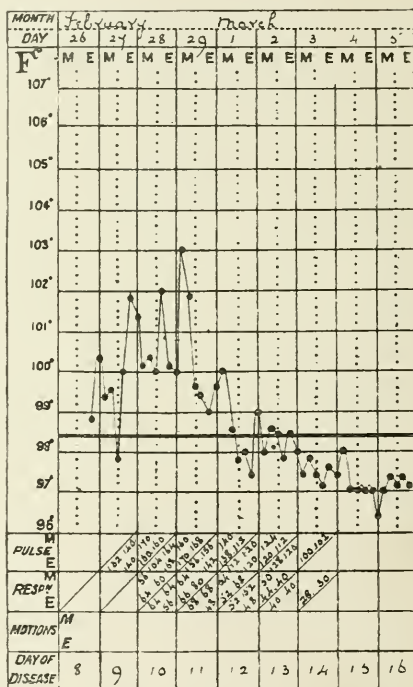
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vertebral border of the right scapula and the vertebral column. On February the 29th there was definite dulness with bronchophony in this situation, and there was marked deficiency of chlorides in the urine. On March the 1st the tube was left out. There was still consolidation of the right upper lobe. Resolution commenced the next day, and on March the 5th the lungs were normal. No further complications ensued, and the child was discharged in good health on April the 4th, 1904.

CASE 3.



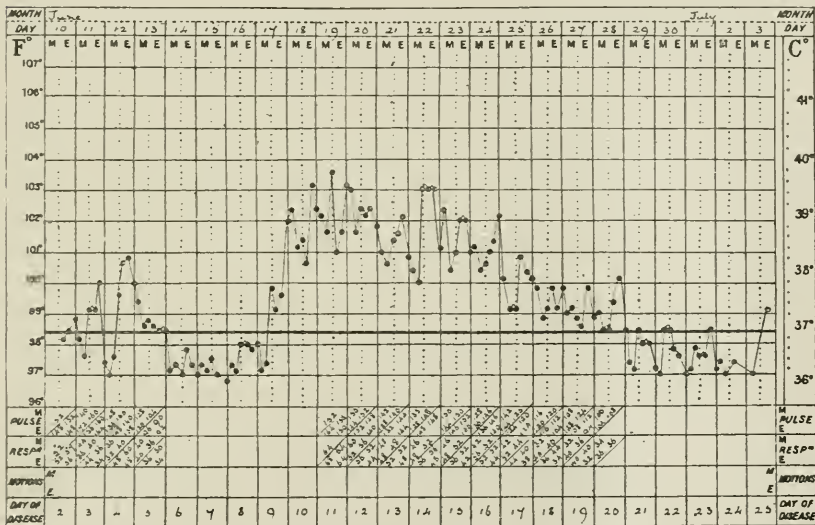
CASE 4.



CASE 5.—A girl, aged 5 years, was admitted June the 10th, 1904, on the second day of an attack of mild faucial and severe laryngeal diphtheria. Tracheotomy under chloroform was performed on admission. During the following two days violent dyspnoeal attacks occurred, for which no mechanical cause could be found. The throat became clear on the 12th, and on the 14th the tube was left out. The temperature reached normal on the same day and remained so till the 17th, when it rose suddenly to 102° F. The child was very fretful and passed a restless night. It was not till

the 19th that any signs in the chest were discovered. A large patch of consolidation was then found in the right lower lobe. The respiration was rapid and accompanied by an expiratory grunt. From the 19th to the 21st serum urticaria was present on the trunk and limbs. On the 20th the red border of the upper lip was covered by an eruption of herpes. Small clusters of vesicles were also present just below the right corner of the mouth and over the right malar bone. The whole of the lower lobe of the right lung was now solid, and a small patch of consolidation was also found at the left base. The facial colour was good, but there was slight

CASE 5.

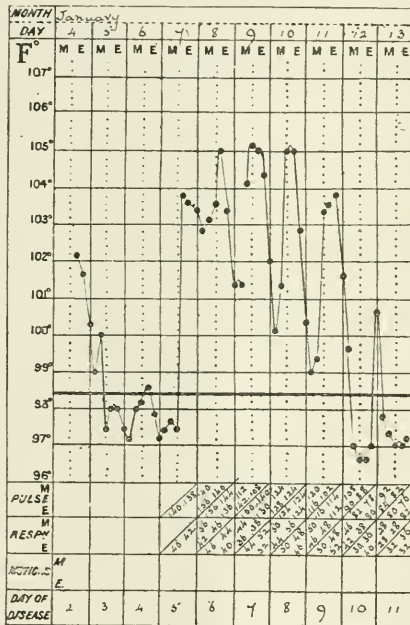


cyanosis of the finger tips. There was no respiratory distress. On the night of the 22nd she was delirious. On June the 23rd the pulse was weak and the heart sounds were obscured. She was given strychnine gr. $\frac{1}{60}$ four hourly hypodermically. On the 25th signs of resolution in the lungs were detected and the temperature began to fall. The strychnine was reduced to eight-hourly doses, and was omitted next day. After an apyrexial interval of four days the temperature began to rise again. Owing to the impairment of resonance and weakness of breath sounds at the right base an exploratory puncture was made and some turbid fluid was removed. The following day an operation for empyema was performed, and about 1 oz. of perfectly sweet pus evacuated. The temperature subse-

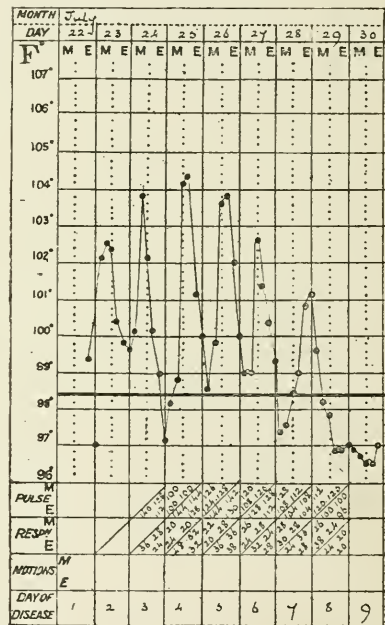
quently remained practically normal. By August the 25th the wound had perfectly healed, and the child was discharged on August the 28th, after eighty days' residence in hospital.

CASE 6.—A boy, aged $5\frac{1}{2}$ years, was admitted January the 4th, 1905, on the second day of a mild attack of faucial diphtheria. Twelve thousand units were injected. A trace of albumin was present in the urine, which lasted till January the 13th. The throat became clean on the fifth day. The same evening he complained of headache and pain in the left hypochondrium. The skin was

CASE 6.



CASE 7.



pungently hot, and there was slight cough. No physical signs could be detected on examination either at 5:45 p.m. or 10:45 p.m. The following day there was decided impairment of resonance in the right axilla and right base, where pleural friction and fine crepitations could be heard. The cough was rather troublesome. A mixture of ipecacuanha and squills was therefore given three hourly. On the 11th definite bronchial breathing could be heard below the inferior angle of the right scapula. There was some serum urticaria on the abdomen. The temperature fell by crisis on the tenth day, and after a slight rise the following night remained

normal till January the 15th, when there was pyrexia of five days' duration associated with circinate erythema due to serum. By January the 25th the signs in the chest had quite cleared up, and the boy was discharged on February the 14th after a stay in hospital of forty-one days. No paralysis of any kind developed in this case.

CASE 7.—A girl, aged $3\frac{1}{2}$ years, was admitted to hospital on July the 22nd, 1905, on the first day of an attack of mild faucial and laryngeal diphtheria. A thick cloud of albumin was present, which lasted till the tenth day. Twelve thousand units were injected on admission, and the throat became clean on July the 26th.

On July the 24th she complained of pain in the abdomen and vomited after her feed. Respiration was not markedly accelerated, but there was a slight cough. There was definite impairment of resonance, fine crepitations, and friction heard below the spine of the right scapula. The next day bronchial breathing was heard in this situation, and herpes of the upper lip developed. Resolution commenced on the 28th, and by August the 7th the lungs were normal. Beyond serum urticaria, limited to the injection site, which occurred on July the 29th, no further complications developed, and the child was discharged on September the 7th, 1905, on the forty-eighth day of disease.

I am indebted to Dr. J. E. Beggs, Medical Superintendent of the Grove Hospital, for permission to publish these cases.

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The Society for the Study of Disease in Children.

A MEETING of this Society was held at 11, Chandos Street, on Friday, November the 16th, Dr. TYSON (Folkestone) in the Chair.

A Paper on Psoriasis in Childhood was communicated by Dr. JAMES BURNET (Edinburgh). He considered that psoriasis might differ in causation in early and adult life, and in children it was never so generalised or so scaly as in the adult. He believed that every case of psoriasis in the child was due to rheumatism, and that this cause was frequently overlooked. He had been able to satisfy himself that in the greater number of instances psoriasis was merely a rheumatic manifestation, and he quoted two cases of psoriasis in children who at the same time suffered from rheumatism and chorea. He accordingly treated every case of psoriasis with large doses of salicylate of sodium or, preferably, aspirin. Alkaline baths and tar ointments were, he thought, useful additional measures.

Dr. PORTER PARKINSON remarked that at a previous meeting of the Society he had expressed a similar opinion in regard to the causation of psoriasis as that now advocated by Dr. Burnet.

Dr. E. I. SPRIGGS said he could bear testimony to the fact that psoriasis and rheumatism were sometimes associated in children; but it had never occurred to him that there was any reason to suppose that the two conditions were associated.

The CHAIRMAN (Dr. TYSON) (Folkestone) had never associated the comparatively rare cases of psoriasis in children with rheumatism, nor had he done so in the case of adults.

A Case of Hemiplegia occurring in an Epileptic aged 4 years, with Athetosis of the Arm, was shown by Dr. E. I. SPRIGGS and Mr. F. W. HIGGS (introduced). The boy, now aged 9 years, had convulsions when teething and a definite epileptic fit at eighteen months, since when he has been subject to fits. At four and a half years his mother states that he had a fit in the night, and the next day his left arm and leg were paralysed. The leg improved rapidly, and in two or three months he could get about. When first seen in July last both arm and leg showed involuntary movements. At the present time there is left facial paresis, paresis of the muscles of the left arm and forearm, and, to a smaller degree, of the left leg. The left hand is subject to fairly regular, rhythmic, athetoid movements, by which the hand is extended, circumducted, and flexed. The athetosis is more marked during excitement and ceases during sleep. The tendon jerks are not obtained in the upper limb, but are exaggerated in the lower, as compared with the healthy side. The left foot drags in walking. The electrical reactions of the muscles affected are normal. Some mental impairment is present.

A Case showing Congenital Division of each Clavicle into two parts in a Girl aged 12 years was shown by Dr. E. I. SPRIGGS, of which the following is an account. Her mother has myxœdema. Each clavicle consists of two parts, about an inch and a half long, connected together by a freely movable joint. At rest the two portions lie at an

angle one to the other, forming a wide V with the apex upwards. The shoulders can be brought to within an inch of each other in front. The attachments of the muscles are normal. With the X rays the bones are found to be very imperfectly ossified. There is also an infundibuliform deformity of the sternum, a high palate, and irregular teeth. The thyroid is present and the mental condition normal. Two similar cases in a brother and sister have been reported by Preleitner.

Dr. GEORGE CARPENTER said the case shown by Dr. Spriggs was of interest to him, and as his name had been mentioned he would offer a few remarks on the case which he had published in the 'Lancet' in 1899. In his patient there was complete absence of the clavicles, and a point of extreme interest was that five other members of the same family had various deformities of their clavicles. His patient could bring the shoulders together in the mid-line in front, and a photograph of the girl could be seen on p. 224, vol. iii, of the 'Reports' of the Society. Dr. Spriggs had spoken of operative measures, but the patients who had come under Dr. Carpenter's observation did not appear to suffer in any way from their deformities, and he doubted whether any operation would have been of any benefit to them.

A Case of Bronchiectasis was shown by Dr. T. R. WHIPHAM. This child, a girl aged 2 years and 4 months, suffered from a chronic cough, and from time to time brought up quantities of thick, greenish sputum with an offensive odour. She sweated a good deal, and was frequently sick with the cough. There was marked "clubbing" of the fingers and toes, and cyanosis was present to a varying degree. The thorax had a "pigeon-breast" outline, and over the right lung, to a great extent, there was an impaired note, and at the base the breathing varied at times from mere harshness to a cavernous character. Râles and creaks could be heard all over it. The patient had bronchitis and pneumonia when six months old, and this was immediately followed by whooping-cough, since when the child has had a continuous cough.

Dr. RAYMOND JOHNSON asked whether there was any possibility of there being a foreign body in the case. In all cases of unilateral bronchiectasis of a child, particularly on the right side, that possibility had to be considered. He believed that in some cases in children whooping-cough had been diagnosed in patients who were suffering from irritation due to a foreign body in the bronchus. He asked whether there was an X-ray photograph of the case.

Dr. GEORGE CARPENTER said he thought some such cases were not infrequently associated with a spasmodic cough very much like that of whooping-cough, without a foreign body being present. He showed a case before the Society last year in which the spasm was intense. On many occasions the attack was exactly like a paroxysm of whooping-cough, but on others the child ceased breathing, became black in the face, and was unconscious for a considerable time, so that doubt was felt by the onlookers as to whether it would ever breathe again. Several X-ray examinations were made and a skiagraph was taken in that patient, but there was nothing found by these proceedings to suggest that there was a foreign body in the bronchus. He desired to ask whether an examination had been made of the blood, because in that case, and in others under his care, the red corpuscles were greatly increased.

Dr. PORTER PARKINSON said that some years ago he published the reports of autopsies on two children who had suffered from what was supposed to

be whooping-cough for many months. In one of the cases he found bronchiectasis with enlarged glands in the chest, which pressed on the vagus so as to push it out of its course. In the other case there was no bronchiectasis, but merely enlarged glands in the thorax. He had at present a child who had been under his observation five years, during most of which time it had had attacks of coughing, with whooping. In that case the physical signs were slight and were confined to one side, resembling those of mild bronchiectasis. Probably in that case there were enlarged glands pressing upon or in some way irritating the vagus. Therefore he thought the diagnosis in some cases of supposed whooping-cough was a little uncertain.

Dr. WHIPHAM, in reply, said he had not entertained the question of there being any foreign body present. He would, however, examine the child with the screen and see whether any foreign body could be seen. He had not examined the blood, but would do so.

A Case of Encephalitis was shown by Dr. EDMUND CAUTLEY. The boy, aged 4 years, was taken ill with fever, shivering, and nausea, on August the 31st. On the third day he vomited and was delirious (? a fit). Next day he became unconscious and had incontinence. He was admitted into hospital in an unconscious state, with some rigidity of the neck muscles, conjugate deviation of the eyes to the left, and trismus. Temperature 102.4° F. During the four days from admission he had nineteen fits. The fever subsided in twenty-four hours. He became sensible on the eighth day of the illness. The conjugate deviation persisted for two weeks, and he had palsy of the right external rectus and the left seventh nerve. The mental condition slowly improved, and he is now quite well, except for a little weakness in the muscles supplied by the right sixth nerve and the left seventh nerve.

A Case of Congenital Lateral Cervical Fistulæ in a Girl aged $8\frac{1}{2}$ years was shown by Mr. PHILIP TURNER. The fistulæ from which pus exuded were situated at the inner border of each sterno-mastoid $1\frac{1}{2}$ inches above the clavicle. The sinuses, which extended upwards and backwards from these openings, were dilated at their commencement and could be felt extending upwards nearly to the angle of the jaw. No other deformities were present, and there was no family history of cervical fistulæ. The condition was regarded as due to persistence of the cervical sinus and either the third or fourth branchial cleft.

A Case of Syphilitic Nephritis in an Infant aged 3 months was shown by Dr. GEORGE CARPENTER. The child was dropsical, its urine was albuminous and contained hyaline, epithelial, and granular casts, and some red blood-corpuscles. The infant, who was well nourished, had chronic snuffles, a muco-purulent discharge from the nostrils, and a fading eruption on the buttocks, backs of the thighs, and the calves. It was being treated by grey powders, and with benefit apparently.

Three Cases of Infantile Paralysis were shown by Dr. GEORGE CARPENTER. One of them was that of a boy, aged 11 years, with double foot-drop of sudden onset three months previous to coming under observation. The muscles of the fronts of the legs gave the reaction of degeneration. The second case was that of a girl, aged 3 years, who suddenly became paraplegic. The muscles of the legs and thighs gave the reaction of degeneration. The child also could not raise her head or hold it erect, but she could move it

from side to side. The third case was that of a girl, aged 20 months, whose right leg was paralysed, and the muscles gave the reaction of degeneration. The left leg was rigid and its muscles reacted to faradism, though feebly. The onset was sudden, after an attack of diarrhoea and vomiting.

A Large Retroperitoneal Dermoid Tumour or Teratoma in a child aged 2 years and 9 months was shown by Mr. RAYMOND JOHNSON. There was a large elastic tumour in the left half of the abdomen, presenting characters similar to those met with in a sarcoma of the kidney. The lumbar spine showed a well-marked lateral curvature to the right, with rotation of the vertebræ, and in the left loin were two small, fluctuating swellings not apparently connected with the tumour in the abdomen. Before operation the case was regarded as probably tuberculous disease of the spine, with lumbar and large retroperitoneal chronic abscesses. An exploratory incision in the loin revealed the true nature of the case. Part of a small cyst removed from the posterior part of the tumour presented the naked-eye and microscopic characters of a dermoid.

Mr. FRANCIS JAFFREY said that if Mr. Johnson thought of removing the tumour he ought to do so without loss of time, as it might soon be too large to admit of operation. The operation would be a serious one, and he did not envy Mr. Johnson the task.

Two Cases of Anæmia Pseudo-Leukæmica Infantum were shown by Dr. J. PORTER PARKINSON. One case, a child aged 20 months, in May, 1906, had a spleen occupying the greater part of the left side of the abdomen. It was anæmic and markedly rickety, being unable to sit unsupported. The blood-count gave 2,416,000 erythrocytes, 20,000 leucocytes, and 45 per cent. hæmoglobin, 50 per cent. polymorphonuclears, 10 per cent. large lymphocytes, 30 per cent. lymphocytes, and 3 per cent. eosinophiles. Many normoblasts were present. The child was treated by fresh air, iron, arsenic, and the X rays three times a week. A marked improvement resulted in the general condition, and the spleen decreased to a quarter its bulk. In August there were erythrocytes 3,500,000, leucocytes 7000, hæmoglobin 50 per cent., polymorphonuclears 65 per cent., large mononuclears 5 per cent., lymphocytes 20 per cent., and eosinophiles 15 per cent. The child can now stand unsupported and has gained 3 lb. in weight. The other child was shown for comparison as an exactly similar case treated in the same way with the omission of the X rays, but no improvement in any direction had taken place.

Dr. EDMUND CAUTLEY asked what was the number of red cells in the second case. The child did not seem to be anæmic now; probably that was the result of treatment.

Dr. G. A. SUTHERLAND asked how many exposures to X rays were given and what their duration was.

Dr. PARKINSON, in reply, said the number of red cells in the second case was $2\frac{1}{2}$ millions when it first came in, and $3\frac{1}{2}$ millions at the present time. The X rays were used three times a week, ten minutes' exposure on each occasion. At the end of two months it was interrupted for a fortnight. The exposures were not always over exactly the same area, so as to avoid skin troubles. There were no bad effects from the procedure, either to patient or operator.

A Peculiar Deformity of the Orbit in a Boy aged $6\frac{1}{4}$ years was shown by Mr. SYDNEY STEPHENSON. The lad's eyes presented a remarkable

appearance. The palpebral fissure, which in the left eye was of almost quadrangular shape, was directed downwards and outwards, exposing more of the eyeball than is customary. The eyelids could be closed voluntarily. The upper puncta lacrymalia were present and patent, but no trace could be found of the lower ones. No dermoid growths were present in connection with the conjunctiva. On passing the finger along the lower border of the orbits, the malar bone and the nasal process of the superior maxillary bone felt to be rough and unfinished, as it were. The eyes were hypermetropic to the extent of 5 D. The fundus oculi manifested no peculiarities, congenital or otherwise. The only associated deformity disclosed by a careful general examination of the patient was a diaphragm occluding the left external auditory meatus. The tick of a watch, however, could be heard on that side by osseous conduction. The boy, who was bright mentally, weighed 38 lb., and his height was 43½ inches. He was the youngest of three children, and was born at term, without instrumental aid. There was no history of deformities in other members of the family. The condition of the eyes and ear dated from birth. An X-ray examination clearly showed a deficiency of the orbital process of the superior maxillary bone. In other respects the superior maxillary bones appeared to be normal, inasmuch as the permanent teeth were well developed.

Editorial.

THE AMALGAMATION SCHEME AND THE SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

IN the Editorial of November we criticised the amalgamation of medical societies scheme as a whole and in relation to the Society for the Study of Disease in Children, and we strongly advised the Society to remain aloof.

Subsequently to the publication of our views—viz. on November the 23rd—the Society held a special meeting to decide its course of action in regard to the scheme, the chair being taken by the Chairman of Council (Mr. R. Clement Lucas).

The Chairman, in the course of a long address, in which he freely and adversely criticised the financial aspect of amalgamation, explained what would be the future position of the Society if it joined the scheme. It would, he pointed out, lose all its accumulated capital—some £700 in consols, with a good balance at the bank. Its name would disappear, it would be deprived of its annual volume of ‘Reports,’ now so well known at home, on the Continent, and in the United States of America, and, worse than all, it would lose its

independence and all prospects of future development. He also pointed out that the Society could never hope to have a home of its own, with its meeting-room, museum, and library—a pet scheme of his and of others—and that it would lose its chances of developing this branch of medicine in a way which has not hitherto come about; further, that all incentive to future progress would be lost, and that the Society would become a mere spoke in a wheel of a cumbersome machine which must necessarily fall to pieces of its own weight.

At the conclusion of his address the following resolution of the Council was proposed from the Chair and duly seconded—viz. “That the Society for the Study of Disease in Children declines under present circumstances to join in the scheme of amalgamation.”

During the discussion that followed one of the speakers, scenting outside opposition, drew attention to the danger of the Society holding aloof from the scheme by reason of the fact that the amalgamated societies would assuredly found a children’s section, and that that section would be very energetically worked by certain members of the profession attached to children’s hospitals who were not in sympathy with the Society for the Study of Disease in Children. These persons had abstained from joining it for reasons best known to themselves (perhaps not wholly unconnected with the fact that they did not found it), they watched with a jealous eye its good work and its robust health, and they would presumably willingly give it, if possible, the *coup de grâce* and reign in its stead.

The fact that a small majority of members of the Society, when asked some time previously by post-card whether they were in favour or not of amalgamation, had expressed themselves in the affirmative was also urged, but it was not pointed out that the majority of country members, the predominant partners in the concern, were against amalgamation.

But at this stage of the proceedings there was no scheme before the members, and they were merely asked to express an opinion on an abstract proposition.

An attempt was also made to show that the Council had not complied with the mandates of the Society in regard to the payment of certain expenses towards the amalgamation scheme and also to the continuation of its representation on the Amalgamation Com-

mittee, but unsuccessfully. Nor were the Chairman's pessimistic views on the finance of the scheme accepted by the opposition, who were inclined to take an optimistic view on that score. Neither could they see that the Society had anything to lose other than its invested funds, and that, given financial failure, the worst that could happen to the Society would be that it would have to start afresh. To allow any such trifles to militate against the furtherance of a brilliant project and to refuse to join a Big amalgamation scheme like the one before the Society, a scheme not formulated for any private interests but for the good of English medicine and surgery and for the good of science, was not only acting the base part, but was trifling with fate and courting disaster.

One of the members, who had been attentively listening to these views, was not captivated by such Quixotic ideas, and thought that the essence of the affair, as far as the Society for the Study of Disease in Children was concerned, was somewhat pithily expressed by a verse which he had recently heard, which evoked applause on its recital, and was apparently not unknown to some of the members present :

“ There was a young lady of Riga,
Who smiled as she rode on a tiger ;
They returned from that ride
With the lady inside—
And the smile on the face of the tiger ! ”

Nor was the dream of an Academy of Medicine for England viewed by all present as *the* final thing to strive for.

The well-known failures of similar academies on the Continent, in France and in Germany—some of them with high-sounding titles, such as “Imperial” and “Royal”—to do good work or to command the respect of the medical world, was impressed upon those present by one of the speakers, as also the fact that outside opposition societies had to be founded to conduct the work which these mastodonic bodies neglected.

Finally, the Society, becoming weary of the discussion, decided by 22 votes to 5 in favour of the resolution.

The Society for the Study of Disease in Children has therefore decided by a large majority to control its own future, which we hope

for its own sake, as well as for that of children's medicine, will continue to be a bright and useful one, and a credit to the nation. But threats harm no man, and if there is to be a powerful opposition—something more strenuous than mutual admiration associations holding fireside chats on children's diseases—well and good. Opposition is beneficial for all. It is an incentive to good work and to progress, and we hope that the Society for the Study of Disease in Children—which has amply vindicated itself of the whilom accusation that it had “fallen into the wrong hands”—will be in the van in any such contest. It has a good past record, a history, short though it be, which should stimulate it to increased and better efforts.

It is at least free and untrammelled, and is arbiter of its own destiny; it has mercifully escaped being a barely tolerated section in an unwieldy medical trust, which would have muzzled it and ruled it with a rod of iron, and it has not parted with its funds and dropped the substance for the shadow or been gobbled up by a hungry medical amœba. There is every reason, therefore, why the Society for the Study of Disease in Children should continue its useful career. Further, it has youth on its side, it is democratic in its management and free from all despotism, and it possesses energetic officers devoted to its service. The Society's members are enthusiastic, its clinical material is excellent, and it should, therefore, continue to attract good and arduous workers, for whom there is still plenty of room, as well as for the general practitioners, who find a hearty welcome and its meetings always bright, interesting, and well attended.

Abstracts from Current Literature.

Medicine.

Infantile multiple sclerosis form of heredo-syphilis (*The Journal of Mental Pathology*, 1905, vol. vii, No. 1, p. 1).—**Sante de Sanctis** and **Gian Luca Lucangeli** review in a well documented article this interesting subject. Charcot's description of multiple sclerosis gave as its most important symptoms intention tremors, staggering gait, spastic paresis of the limbs, contractures, exaggeration of the deep reflexes, scanning speech, nystagmus, transitory amblyopia, papillary atrophy, mental enfeeblement, epileptiform and apoplectiform attacks. Various authorities differ in their

estimate of the frequency of the affection in childhood. Westphal says that such cases are usually pseudo-sclerosis, which end in recovery and show no post-mortem changes. Marie denies the existence of the disease in children, the reported cases being usually hysteria or cerebral sclerosis. Strumpell insists that the diagnosis is always uncertain unless verified by an autopsy. Abrahamson remarks that a familial form of disease excludes true multiple sclerosis, such cases being either true hereditary diseases, such as Friedreich's, or else due to heredo-syphilis. After enumerating the various sclerotic syndromes the present authors enter into the discussion of one of them, that due to hereditary cerebro-spinal syphilis. The existence of this manifestation of congenital syphilis has been well established during the past fifteen years. Many observers have attempted to found a basis of differential diagnosis between this affection and true multiple sclerosis, although Redlich and Hoffmann are of opinion that this cannot be made without a post-mortem examination. The present authors rely in making this distinction on the course of the disease and the ocular disturbances. The prognosis is much more favourable in the syphilitic affection, marked improvement and even complete cure sometimes occurring. The characteristic appearance of the papilla in true disseminate sclerosis is almost pathognomonic, as is the specific retino-choroiditis of syphilis. In the latter case we find Foerster's yellow atrophy and the familiar reddish nodules of choroidal atrophy. Besides there may be present a gummatous neuritis of the oculomotor nerves or interstitial keratitis. Two families having several affected members are used to illustrate the above conclusions.

ERNEST JONES.

An anomaly of the sexual instinct: Gerontophilia (*Journ. de Neurol.* 1905, No. 10, *Arch. de Neurol.* January, 1906, p. 51).—

Ch. Féré points out that certain sexual perverts are subject to sexual excitation only in the presence of a person of the opposite sex who is at a very disparate age. He describes the case of a young man, aged 27 years, who only felt the sexual impulse when in a position of intimacy with a definite type of woman, who must be over fifty and have white hair and dark eyebrows. With younger mistresses only a sensation of repugnance was evoked. On inquiring into the past history, Féré found that sexual sensations first appeared in the patient on a definite occasion at the age of four, when he was being fondled in bed by a friend of his mother's having the personal appearance described above. Féré adds a few words on the care that should be taken in preventing the development of these abnormal attractions.

ERNEST JONES.

Acute gonorrhœal polyarthritis in mother and child (*Monatschr. f. Kinderheilk.*, May, 1906, p. 80).—**A. Schiller**, in a paper entitled "Kasinstiche Mitteilungen," reports and discusses a case of this coincidence. In the mother the joint affection began fourteen days after parturition; the right knee, left sterno-clavicular, and the left shoulder joints were affected. In the child there was bilateral gonorrhœal conjunctivitis, and the joint complications set in on the eighteenth day, involving the right ankle, the left sterno-clavicular joint, and the left wrist. The author was able to find reports of only three similar cases. He discusses at some length the significance of the relative rarity of general infection in a disease so common as gonorrhœa. Two hypotheses are suggested, first that for general infection to occur a strain of gonococci of especial virulence is necessary, and secondly,

that general infection can only occur in a person definitely predisposed thereto. In support of the first hypothesis are quoted two cases of gonorrhœal arthritis, in man and wife, and in mother and child, and the observation of Ahman, who isolated the gonococcus from the blood of a man with generalised gonorrhœa, grew the organism in the laboratory, and with the fifth generation infected a healthy man, who in due course developed a severe gonorrhœa with metastatic lesions. In support of the second hypothesis Schiller quotes the observation of Lassar, who saw three brothers with gonorrhœa, each having severe general complications. The cases of joint complication in mother and child may also be explained on this hypothesis. The author concludes that the second hypothesis must be received with caution, and all other possibilities excluded before it can be accepted.

WILFRED TROTTER.

Late rickets (*'Gesellsch. f. innere Med. und Kinderheilk. in Wien,' May 10, 1906; 'Monatschr. f. Kinderheilk.,' May, 1906*).—Drey showed a case with the following features: The patient was a girl, aged 7 years, who four months earlier had begun to have severe pain during walking. Since the onset of the pain the epiphysis had developed pronounced enlargement and deformity. Drey said that in twenty years he had seen 50,000 rachitic children, and had found only five cases of rachitis tarda. Such cases might appear as a chronic continuation of early rickets, and, then there was marked deformity, or, as in the case shown, the disease might come on suddenly in a previously healthy child. This latter form Drey preferred to call rachitis adolescentium. Kassowitz agreed with this nomenclature. He had seen a number of cases belonging to the second group. They were for the most part girls between the ages of 12 and 15 years. He regarded as characteristic severe pains in the wrists and rapidly oncoming prominence of the bones of the ankle and wrist, as well as deformity of the tibiæ. Genu valgum and painful flat-foot coming on about the time of puberty were clinically and histologically of the same nature.

WILFRED TROTTER.

Intestinal spasm in infants (*'La Clin. Infant.,' July, 1906, p. 426*).—A. Lesage thus describes this condition, which is quite different from "congenital spasm of the pylorus." The infant at birth is in good condition and is brought up at the breast or by bottle. Everything goes well till after three weeks or a month, suddenly, without appreciable cause, the infant vomits. Diminution or change in the feeding has no effect, the vomiting is continuous, the stomach bulges, the stools are scanty, the abdomen retracted, spasm in loops of intestine ensues, with inanition and progressive wasting. The infant vomits each feed entire a few moments after taking it; this is generally the rule, but in less severe cases there may be more or less vomiting after an attack of pain a quarter or half an hour after ingestion; on some days even all the feeds may be retained. The intensity and persistence of the vomiting are of special importance; the milk is more or less curdled according to the duration of digestion; sometimes thick, green clots of bile like wax are found. The vomiting may subside somewhat, but as a rule it resists all treatment. Both when fasting and after food the stomach forms a visible swelling, reaching more or less as far as the umbilicus, just as in "congenital spasm of the pylorus." It may or may not get smaller after vomiting. The stomach movements can be seen and peristalsis indicating an obstruction situated lower down. There is no pyloric tumour. The liver and spleen are normal. In contrast to

the distended and prominent stomach, the mass of intestines are small and retracted, tucked away between the stomach and the pubes. When the infant is not crying it can be noticed that the whole length of the intestine is contracted, small, and hard, rolling under the finger like the descending colon in dysentery and entero-colitis. This intestinal spasm may disappear during sleep or warm lavage. The stools are infrequent and consist of masses of green and thick bile. From time to time, especially after a feed, there is an attack of pain, the abdomen is retracted and the limbs flexed, the face drawn and suffering. These attacks are variable in intensity and duration. During the intervals the infant sleeps. There is no fever nor cyanosis; the cry is strong; the child sucks with energy. The vomiting persists; the infant atrophies, and soon becomes a mere skeleton. The renal functions are normal if he can retain a little milk, especially from the breast; if not, the urine is scanty; there are no uratic deposits, no sugar, nor albumin. Death follows in a variable time. An autopsy shows contraction of the whole intestine from the pylorus to the rectum, the stomach distended and with thickened walls: in certain places a probe passes with difficulty. Treatment consists in unloading the liver with calomel and overcoming the spasm with hot baths and warm intestinal lavage. The condition seems to indicate an hepatic origin, possibly an intoxication by biliary salts. The author is of opinion that this disease is the cause of a large number of infantile atrophies, that it is a special disease having its own symptoms and evolution, and must not be confounded with congenital debility nor with the digestive cachexia following on chronic gastro-enteritis.

VINCENT DICKINSON.

Treatment of incontinence of urine by massage (*Journ. de Méd. de Paris*, July 29, 1906).—**Caillag** attributes this infirmity in infants to feebleness of the sphincter of the bladder and a faulty innervation. He advocates massage of the sphincter by the introduction of the right index finger into the rectum, when the symphysis is felt; the canal of the urethra is followed up to the neck of the bladder, and this is massaged by the finger five or six times. Next, the flat of the hand being parallel to the axis of the body, the fingers are pressed into the pelvis towards the sacrum and repeated pressure made with the object of inflaming the hypogastric plexus. Then, the patient being in the dorsal position, the thighs passively and actively abducted and adducted to influence the muscles of the thighs and perineum, including with the latter the sphincter of the bladder. Next, the patient leaning forwards and placing the hands against a support, crosses the legs and makes an effort as if to retain a stool. Finally a light tapping massage is administered over the sacrum to excite mildly the nerves from the cord to the pelvis. The treatment is said by the author to be painless.

J. PORTER PARKINSON.

Clinic for infants (*Journ. de Méd. de Bordeaux*, July 15, 1906).—**J. Anderodias** points out the advantages that have attended the formation of this clinic, whose object is to instruct mothers in the feeding and care of their infants from the time of their birth. It adjoined the lying-in hospital, and so was conveniently situated for the purpose. The infants are first stripped and weighed, each being placed on a fresh strip of paper on the balance, the paper being renewed for each child; the mother is given a card with the weight, and a table of diet; the infant is brought weekly, its weight registered, and the diet adjusted, as may be necessary. The children are not all brought soon

after birth; some attend for the first time at the age of two, three, or four months, and then come for some infantile ailment, such as diarrhœa; still, many of these attend regularly after the infant is cured, and derive much benefit. Every effort is made to encourage breast-feeding, and this is done in 64 per cent., while in 22 per cent. the breast is given in conjunction with the bottle. Statistics show that since the promotion of this Clinic at Bordeaux the mortality of infants under two years old has diminished by nearly a half, the actual figures being a decrease from 444.17 to 251.08 per mille.

J. PORTER PARKINSON.

Bell's paralysis in an infant of eight months ('*Dom. Med. Monthly*, July, 1906).—**John Rhein** relates the case of a healthy but feeble child who developed an abscess under the chin, which was opened, and the day afterwards typical Bell's paralysis developed, which was chiefly obvious from inability to close the right eye. There was nothing abnormal in the ears or throat. The paralysed muscles showed the reactions of degeneration. The author shows how uncommon Bell's paralysis is under the age of ten years, and he recommends extreme care in the use of electricity, in order not to frighten the child. He suggests that the reason that the paralysis is so unusual in infants is the fact that the canal of the facial nerve in the temporal bone is not completely covered in at that period of life, and hence the nerve is less susceptible to pressure.

J. PORTER PARKINSON.

Head-nodding with nystagmus in infancy ('*Lancet*, July 28, 1906).—**Still**, in a lecture on this subject, states that thirty-one cases have been observed by him, nineteen of the patients being boys and eleven were girls (the sex in one case was not noted). In the majority the onset took place between the ages of five and twelve months. He gives the three leading symptoms as head-nodding, a tendency to look out of the corner of the eyes, and the nystagmus. Regarding the head-movement this may be an antero-posterior, affirmative nod, or a lateral shake of the head. Sometimes, too, they vary, being at one time antero-posterior, at another lateral, or the two more rarely may be combined. The rate of movement varies from 60 to 120 nods per minute. In some cases the movements can be stopped by attracting the child's attention. The head-movement occurs only when the child is sitting with the head unsupported, and never while the child is lying in his cot. It must be distinguished from head-rolling, which occurs chiefly when the patient is lying down. The range and vigour of the movements vary considerably, but they are always involuntary. Such children have a tendency to fall into an absent-minded stare, which seems unnatural to an infant. The child, however, takes notice whenever attention is drawn to a sight or sound. There is no special liability, as has been stated, for such children to develop *petit mal*. The habit these children have of looking out of the corner of their eyes is always very suggestive. The nystagmus shows a unilateral predominance, and its onset without apparent cause in an infant of a few months should lead to suspicions of head-nodding. It is always exceeding fine and rapid. This symptom may precede the spasmus nutans by several weeks or even months. Referring to the ætiology of the condition, the writer remarks that rickets is present in a large proportion of cases. As a rule such evidence is quite definite, but usually slight in character. Its relation to dentition is specially noteworthy, and the affection rarely persists after the end of the first dentition. Other forms of peripheral irritation may, however, act as

the exciting cause, such as convalescence after a severe illness, or accident. The defective-light theory of its origin cannot readily be accepted. The condition occurs in children living in well-lighted houses. The seasonal incidence of the disease is remarkable. In 21 of Still's cases the onset could be dated with some degree of accuracy as follows: January, 7; February, 5; March, 1; April, 0; May, 0; June, 0; July, 1; August, 0; September, 2; October, 1; November, 1; and December, 3. Thus, 17 out of 27 cases began with the three months December to February. Only 1 began during the five months April to August. The prognosis of spasms nutans is good. The condition usually passes off after a few months. It has no special relation to epilepsy. Such children do not become specially backward. We may, therefore, as a rule, give an unqualified good prognosis. The treatment consists in the administration of sedatives, and phenagonum seems better than bromides in such cases. At six months old half a grain, and at one year old one grain of phenagonum may be given. In some cases the writer has given a combination of bromide with cod-liver oil, apparently with good results. The part played by rickets in predisposing to spasms nutans suggests also the advisability of inquiring into the feeding, and correcting any fault which may favour the rachitic tendency. Cold or tepid douches, as the infant sits in a warm bath, tend to reduce the nervous irritability, while confinement in a close, ill-ventilated room, whether well- or ill-lighted, always increases the instability, and must, therefore, be forbidden. Such children must be kept out of doors as much as possible. By such means permanent cure will be brought about.

JAMES BURNET (Edinburgh).

The public supply of pure milk for infants (*'Lancet,' August 18, 1906*).—G. F. McCleary suggests that the milk in infants' milk depôts should never be supplied in such a way as to run the risk of discouraging breast-feeding. Care should be taken to admit to the depôt only those infants for whom satisfactory breast-feeding it is impossible to secure. He found that at the Battersea depôt many mothers attended who were perfectly able to nurse their offspring. He always assures the parent that depôt milk is but a poor substitute for mother's milk. If the milk is supplied to all applicants without discrimination we lay ourselves open to the charge that we discourage breast-feeding, and are therefore guilty of *lèse maternité*. [We commend this paper to the notice of our readers, as it is the most sensible statement of facts we have ever read on the question of infant milk depôts.—ED.]

JAMES BURNET (Edinburgh).

The tonsil as a portal of infection (*'Arch. of Pediat.,' 1906, vol. xxiii, p. 481*).—A. Jacobi gave an address to the American Pediatric Society on the tonsil as a portal of microbic and toxic invasion. He had noted that in membranous throat affections limited to the tonsil there was little or no glandular swelling, but if it extended or began on adjacent parts the lymph nodes swelled at once. Laryngeal diphtheria also is not attended with glandular swelling or fever, probably because of the scanty network of lymphatics. After discussing the various anatomical descriptions of various writers and the possibility of the entrance of foreign material through the epithelium, even without a lesion, Jacobi concludes that microbic invasion through the tonsil is not predominant over that which takes place through the lymph apparatus of the pharynx. According to many, there is a lymph

communication between the tonsil and at least one gland, situated near and below the crossing of the sternocleidomastoid and digastric muscles.

EDMUND CAUTLEY.

Pathology.

Recent researches on the passage of tubercle bacilli through the intestinal track ('*La Clinique Infant.*' June, 1906, p. 358).—Some years ago Behring advanced the theory that the intestine served as the gate of entry of Koch's bacillus into the human organism, and that infection probably took place at an early age by the milk of tuberculous cows. These new ideas were at first received with reservation, since it was more readily thought that the respiratory track was first invaded by tuberculous germs floating in the dust of the air, especially as the frequent occurrence of caseous peribronchial glands seemed to point to an initial tubercular process in the pulmonary tissues. The recent researches of H. Vallée show that the intra-thoracic lymphatic system can be invaded even when the tubercular products have been introduced by the digestive track, and even when the intestine and mesenteric glands do not seem themselves to be affected. The young calf seems much more prone to infection than older subjects in whom the digestive reservoirs being fully developed ensure an extreme attenuation and harmlessless of the bacilli introduced. This proneness to infection is shown by the following experiments: Four calves were suckled on two occasions, with forty-eight hours' interval, by a cow affected with mammary tuberculosis; they were subsequently suckled by their mothers proved free from tubercle. After five weeks they were killed, and all except one found to have mesenteric tuberculosis, but no lesion of the spleen or liver; three of them, notably the one that had no intestinal or mesenteric lesions, had *marked changes in the bronchial and mediastinal glands*; tuberculous lesions on the anterior surface of the diaphragm showed that it was by the lymphatic communications of the peritoneum and the pleura that the bacilli reached the lung. Another experiment was the inoculation into the mamma of a cow (proved immune by tuberculine) of 1 mgr. of tubercle bacilli; the animal was then kept in the best hygienic condition; a tuberculous mastitis slowly developed, and two years later an autopsy showed the existence of an extensive tuberculosis proceeding from the mammary lesion by the lymphatics; the inguinal, lumbar, mesenteric, and hepatic glands were involved, but the liver itself was entirely free; *the bronchial and mediastinal glands were more affected than any others, the lung extensively invaded*. From these experiments we may reasonably conclude that the pulmonary tissue of bovines has a peculiar receptivity for Koch's bacillus, whereas the liver is more resistant to tubercular invasion; and also that a predominance of pulmonary lesions in a subject having changes also in the digestive system does not mean that the infection has necessarily been contracted through the respiratory track. Having noticed in young subjects infected through the intestine the prominence of the lesions in the bronchial and mediastinal glands, whilst in certain cases the mesenteric and intestinal lesions were insignificant, M. Vallée then made some experiments to ascertain the mode of infection which most effectually caused bronchial lesions. Twenty cows free from tuberculosis were taken, twelve being infected by virulent powders in the naso-pharynx, two by intra-tracheal inoculation, and the other through the digestive track either by direct inoculation into a mesenteric gland or into a branch of the mesenteric vein. Of all these methods the intestinal was

that which caused infection of the pulmonary glands most quickly and effectively. The introduction of the tubercle bacillus through the intestine could be effected without causing any apparent or appreciable lesion of the intestinal mucous membrane or the mesenteric glands, and could pass through the lymphatic channels without leaving any apparent traces of its passage. From these experiments in the cow it must be inferred that bronchial gland lesions take place through the intestinal track, and that, in spite of the extreme youth of the subjects, the pulmonary infection is produced without the occurrence of mesenteric lesions. As in the adult, the pure pulmonary tuberculosis of young subjects, usually considered primary or inspiratory, may result from an intestinal infection and must not be considered solely the result of inhalation of virulent dust. It is, therefore, probable that many pulmonary tuberculosis in the adult proceed from the re-activity of tubercular changes in the bronchial glands consecutive to an infection through the digestive track at an early age without affecting the mesenteric glands. M. Vallée also shows that after inoculations of bovine bacilli, when the cows appear to be immunised, no glandular lesion can be found, but if guinea-pigs are inoculated with these glands they become tubercular, and the same thing happened if a cow were fed on the milk of tuberculous cows. MM. Calmette, Guérin, and Delcarde have noticed experimentally in animals and clinically in children, that whenever tubercular infection shows itself by changes in the bronchial and tracheal glands, tubercle bacilli are found in the mesenteric glands although they appear healthy. From this fact that mesenteric gland infection precedes the appearance of tracheo-bronchial adenopathy, these three observers conclude that pulmonary tuberculosis must be considered the result of a tuberculous infection of intestinal origin. In continuing their experiments they noticed that young calves fed with a small quantity of attenuated tubercle bacilli became completely immunised against virulent tubercular infection through the digestive track. MM. Calmette and Guérin think that this method might be applicable to man: young children would be protected from natural tubercular infection by making them take a small quantity of tubercle bacilli of human or bovine origin, deprived of their virulence by heat and mixed with a little milk, a few days after birth, and a second time later on. An essential and very difficult condition to put into practice, however, would be to keep them protected from all tubercular contamination for a period of four months at least. M. Vallée's communications may be found in 'Soc. de Biol.,' April 1, 1905, 'Congress on Tubercle,' October 3, 1905, 3rd section, 'Acad. des Sciences,' May 14, 1906, and 'Soc. de Biol.,' May 26, 1906.

VINCENT DICKINSON.

Microscopical and chemical observations on a case of sclerema neonatorum ('*Lancet*, July 21, 1906). — **George Carpenter and Sheffield Neave** describe an interesting case of this rare affection. The writers warn against its being confused with a somewhat similar-looking condition, namely cedema neonatorum. There are really two forms of sclerema, one, more prevalent in this country, attacking healthy infants, and confined to the skin and subjacent structures; the other is commoner on the Continent, attacking weaklings, and is associated with severe constitutional disturbances. The patient referred to was an infant of six months, well nourished, with normal temperature. There was induration of the skin on the posterior aspect of the body. This skin condition displayed a pink, purplish appearance, and was of a less even outline than usual,

having some well-marked dimples and rounded but slight eminences. No pitting occurred on pressure, but the colour faded to white and slowly returned as the effect of the pressure passed off. On pinching up the skin the underlying tissue gave a sensation as if a layer of indiarubber was adherent to the under-surface of the skin. This kind of induration extended all over the back and buttocks, the back of the neck and lower part of the back of the scalp, the back of the arms and deltoid regions, and the back of the thighs. The edges of the induration terminated by a gradual thinning. Later the angles of the jaws, the sides of the neck, the arms nearly to the wrists became implicated, and islets formed, moreover, upon the abdomen and chest. There was never any pain present. Within five months these signs had cleared up irregularly but continuously. The glands were then found to be enlarged and shotty in the posterior triangle of the neck and in the groin. The spleen was also somewhat enlarged. A blood-count showed nothing very characteristic or striking in any way. The treatment employed was massage, with first thyroid and then thymus extract internally. Progress seemed to be more rapid under the thymus treatment. Examination was made of a piece of skin and subcutaneous tissue taken from the back of the thigh. The fat and superficial fascia on naked-eye examination were found to be slightly thicker than usual. The fat, however, was whiter and in larger globules than normal, and was much harder to the touch. Microscopic examination confirmed these points and proved that there was no serous infiltration or increase of connective tissue found in some cases of this disease. Notes on the chemical examination of the specimen do not shed much light on the pathology of this disease. The fat in the specimen examined was not found to be specially abnormal. Its saponification equivalent was 205. It would seem, therefore, that we have not yet cleared up the pathology of this very interesting condition, and that further investigations are necessary on the lines thus suggested by the authors of this important paper.

JAMES BURNET (Edinburgh).

The weights of the viscera (*'Arch. of Pediat.'* 1906, vol. XXIII, p. 641).—**D. Boivard** and **M. Nicoll** publish the results of weighing the viscera of a large number of infants and children. The data were obtained from pathological material. The sexes are tabulated together. The length of the child was the factor, next to the age, most closely related to development of the different organs, being less likely to vary than the weight. In all, 571 cases were examined during three years—293 males, 240 females, 38 unrecorded sex. Tables are given for each month of age during the first two years and for each year up to five years. These tables should be referred to by any one requiring information on the subject. The thymus gland was weighed in 495 cases. It varied in weight from a minimum of 0.7 gm. for one case aged 3 months to 33 grms. for one case aged 14 months. The average weight was 5.9 grams. According to the results obtained, it appears that there was no decrease in weight, in other words no true atrophy of the gland, during the first five years of life. The average weight of the liver is seven times that of the heart, nine times that of the kidney, ten times that of the spleen.

EDMUND CAUTLEY.

Rhabdomyoma of the heart-muscle (*'Arch. of Pediat.'* 1906, vol. XXIII, p. 561).—**J. H. M. Knox** and **E. H. Schorer** describe a specimen of multiple rhabdomyoma of the heart-muscle, obtained from a coloured child of seven months. A loud blowing systolic murmur was heard, best at the apex.

No enlargement of the heart was made out. The surface of the heart was irregular on account of numerous firm, discrete nodules, 3 to 8 mm. in diameter. The nodules were greyish-yellow in colour and situated in the cardiac muscle, projecting above the level of the pericardium. The heart weighed 30 grms. The left ventricle was nearly filled by a large pedunculated tumour and a smaller one, similar in character, both arising from near the apex. The tumours were composed of fibrous and muscle tissue. Seiffert, in 1900, collected nine similar cases, of which only four had been satisfactorily described, and reported one more. He regarded von Recklinghausen's case in a newly-born child (1863) as the earliest on record. Knox suggests that these multiple tumours are due to proliferation and subsequent alteration of foetal muscle-cells.

EDMUND CAUTLEY.

Sarcoma of the kidneys ('*Dom. Med. Monthly*,' August, 1906).—A. H. W. Caulfield, the author, gives a report of the necropsy of a female child, aged $2\frac{1}{2}$ years. The right kidney occupied almost entirely the abdominal cavity, and lay behind the ascending colon. A soft, whitish mass reached from the right side of the diaphragm to the hilus of the kidney, not involving the vessels; on cutting through the diaphragm the entire right lung except a small area of the upper lobe was replaced by tumour tissue. In the left lung were numerous metastases. The rest of the body was normal. The right kidney weighed 1167 grammes, and measured $19 \times 13 \times 10$ cm. The microscope showed the growth to consist of a fibrous network enclosing numerous round and oblong cells with large fragmentary nuclei. Mitotic figures were few. In many cells no protoplasm could be demonstrated by staining. The author gives a *résumé* of certain points in connection with these growths, of which the following is a summary. The cause of such growths is unknown; but those tumours presenting other types of tissue as well as sarcoma-cells probably originate from misplaced embryonic tissue. The consistency of the growth may be hard or soft and diffuent. In the round- and spindle-celled forms early metastases take place, but in the myo-sarcomata metastases are late or do not occur at all. Of the cases cured by operation none are of the round- or mixed-celled variety. Hæmaturia appears to be present in about 35 per cent, the colour varying from smoky to dark red. Blood-clots may be present.

J. PORTER PARKINSON.

The action of intestinal poisons in producing arrest of development ('*La Clin. Infant.*,' June, 1906, p. 328).—A. Le Play has made some experiments on three rabbits—the first injected with intestinal extract, the second with hepatic, the third being a control. The results seem to indicate that normally the intestinal contents include substances capable of checking the development of the individual, and that there certainly exist peculiar toxic compounds which, if they play an important part as first cause of disorders which affect the whole organism, they must, on the other hand, take a large share in the diminution or disappearance of the numerous and complex defences which the digestive mucous membrane offers. The author found that at the end of two months or more the control rabbit had attained a weight triple that of the rabbit injected with intestinal matter. During the last month the weight of this one remained about stationary. The rabbit having injections of liver extract, killed on the same day as the other, was nearly the same weight as the control. These facts show that organic extracts such as that of the hepatic parenchyma are not prone to influence

development, and that principles capable of disturbing evolution are found equally in the intestine of the new-born infant as in that of those who are ill. The difference resides essentially in the state of the digestive mucous membrane, really an extended gland, whose important rôle is far from being completely known. A table showing the varying weights of the rabbits experimented upon is appended.

VINCENT DICKINSON.

Therapeutics.

The treatment of infantile cholera (*Journ. de Méd. de Paris*, July 1, 1906).—**Gross** begins by an injection of cold water high into the bowel, then energetic rubbing of the whole body with a mixture of equal parts of alcohol and iced water this generally induces copious perspiration and sleep. During the first twenty-four hours milk is entirely excluded from the diet, whether the child be fed from the bottle or the breast. Mucilaginous soups, boiled sweetened water; or tea in small quantities frequently repeated; every twelve hours a salt and water cleansing enema; every two hours 1 to 2 centigrammes of calomel up to 6; after twenty-four hours breast-feeding can be resumed, but bottle-fed children should not be given milk for two to three days. Fresh air should be insisted upon, and the injections given till vomiting and diarrhoea have completely ceased. As medicine at the commencement, calomel gr. .001 — .015, salol gr. 1 — 0.2, sugar gr. 3 may be given in 6 doses every two hours. If the illness have lasted some days salol 0.1, or sugar of milk 0.3 may be given in 6 doses every two hours, and 3 drops of the following may be given every four hours: dilute hydrochloric acid 15 parts, pepsin 3 parts.

J. PORTER PARKINSON.

The Vichy cure for infants (*Journ. de Méd. de Bordeaux*, July 22, 1906).—**F. Déléage** considers a course at Vichy is of value in the children of those with hepatic, urinary, or gouty troubles, of diabetics and of obese persons, in whom it is useful to regulate the hepatic functions. The infants of such persons, whose nurse takes a course at Vichy while the child is at the breast, will also benefit. Biliary and renal troubles in children are also benefited by the cure, as are many children from five to ten years old who suffer from hyperchlorhydria. The contra-indications are acute or febrile affections, tuberculosis, grave jaundice, etc.

J. PORTER PARKINSON.

Surgery.

The leading ideas in modern orthopedics (*Gaz. Hebdomadaire des Sci. Méd. de Bordeaux*, July 1, 1906).—**A. Fraikin**. Orthopedics was for a long time thrown into the shade by the startling advances of abdominal surgery, but lately it has taken on vigorous development and is now a recognised surgical specialty. Its rapid progress is due to the perfection of the technique of certain operative methods which have replaced the slow, conservative methods, to the use of physiotherapy, and to the discovery of radiography, which permits of the exact knowledge of the pathological condition. One can divide orthopedics into two parts—one operative, sometimes bloodless, the other mechanical, which utilises the physical methods. These two methods do not exclude each other, but are intimately associated and help each other; the first rectifies, the latter maintains this. The con-

nection is obtained quickly, at one sitting frequently, and this is followed by the use of methods to maintain the newly acquired position of the limb. For example, in club-foot with bony resistance or ligamentous retractions, forced reduction under chloroform often suffices. In talipes equinovarus the varus is first corrected and the equinus left for a subsequent reduction. In congenital dislocation of the hip the bloodless method is employed, the other being reserved for cases in which the former method has failed. The method is now well known—reduction by manipulation and fixation for four to six months in forced abduction by means of apparatus, after which it is placed in a further apparatus by which it is slightly abducted, extended, and internally rotated, the nutrition of the muscles being maintained meanwhile by massage, douches, electricity, etc. It is found that some new formation of the cotyloid cavity and ligament occurs, so that a joint is formed. Another order of affections are the tubercular arthritides of children; or a long time resections were the treatment, and these rarely removed the whole of the disease. The conservative method is now followed with better results, though it is slower and looks less brilliant. In spinal caries absolute rest and elastic pressure by wool or by the elastic method of Bier give good results. Orthopedic therapy will have more chance to remain conservative the earlier it is used, and if the knife become necessary it is often that the earlier treatment was not used soon enough or was badly employed. Orthopedics are also preventive of deformities; for example, in rickets the bending of bones, etc., is due to faulty positions of the child, and if these are rectified early the bad results do not follow. Wolff has shown that a modification of the structure of bones follows the alteration in shape of the bone in various deformities, but some believe the alteration of shape of the bone is the cause of the faulty position of the limb; others consider the faulty position is the primary condition. It is for the physician who comes into contact with the infant and who may observe the earliest commencement of bony alterations and of faulty positions to correct these early, and to treat their cause and prevent their further abnormal development. Thoracic deformities are frequently due to nasal obstruction from adenoids combined with more or less rickets. Early treatment and hygiene may prevent permanent trouble, allow the heart and lungs freedom from embarrassment, and so improve the general health. Exercises and gymnastics are of great value in combination with the other methods indicated.

J. PORTER PARKINSON.

Amblyopia in children due to syphilis (*'Lancet,' August 11, 1906*).—**Sydney Stephenson** says there is a special form of blindness, partial or complete, which is directly attributable to the action of the syphilitic virus. The condition is due immediately to opacities in the vitreous humour and remotely to a specific inflammation of the choroid or of the retina or of both of these structures. In the writer's experience the condition is not an altogether uncommon cause of defective sight in infants, and is one that should be diagnosed early in order that specific remedies may be given a fair chance of curing the disorder. The condition referred to corresponds with the retinitis, choroiditis, or retino-choroiditis sometimes observed in acquired syphilis, say from six months to two years after the initial sclerosis; and just as those diseases are often complicated with vitreous opacities so is the affection under notice. In both conditions, congenital and acquired, the eyes may be involved to an unequal degree, but it is most unusual for one eye alone to be affected. In babies a cloudy, vitreous humour means one thing

alone, namely the existence of congenital syphilis. The diagnosis of vitreous opacities, however, may be simple or reverse. Fluctuation in sight is suggestive of their existence. Usually the condition is seen on ophthalmoscopic examination to consist of tiny dust-like opacities which veil or actually conceal the details of the fundus. The latter may be seen for the first time only after the vitreous opacities have been more or less cleared by lapse of time or by the administration of mercurials. It is interesting to note that none of these cases of infantile amblyopia have shown any evidences, past or present, of iritis; indeed, this must be exceedingly rare; and this, too, is the experience of George Carpenter and other authorities to whom the writer refers.

JAMES BURNET (Edinburgh).

Pharyngeal abscesses (*'Lancet,' September 29, 1906*).—**Waugh** divides these into two classes, tuberculous and non-tuberculous, and the latter class he again subdivides into intra-pharyngeal and extra-pharyngeal abscesses, according to the situation of the primary focus of infection either within the walls of the pharynx or outside of them. Tubercular abscesses arise in the middle line of the posterior wall of the pharynx and spread outwards. They are found in cases of tuberculous disease of the cervical vertebræ, and their mode of onset is insidious. It is, therefore, very important to examine the pharynx at intervals in all such cases. Dysphagia is usually the symptom that first appears, but by the time that it has done so the abscess, as a rule, has attained already a considerable size. Non-tubercular intra-pharyngeal abscesses usually arise as the result of some inflammatory affection of the tonsil. Such an abscess rarely points externally in the neck, since it is far easier for it to track round or in the pharyngeal wall, and then bulge forwards into the cavity of the oral part of the pharynx. In the earliest stage such abscesses give rise to no symptoms of any special note. Then comes a group of symptoms pointing to the pharynx as the seat of the disease. We have a muffled cry, and he does not swallow his saliva on account of pain which such swallowing occasions. The head, too, is thrown back. At this stage the abscess forms a tense swelling. As the swelling increases we get all the signs and symptoms of obstructive dyspnoea. The condition may now be mistaken for diphtheria with laryngeal involvement. Non-tubercular extra-pharyngeal abscesses are met with when the deep cervical glands in the neck are enlarged; and pushing the side wall of the pharynx inward, the broken-down glands form a tense, rounded swelling, bulging into the oral parts of the pharynx. Such an abscess should be opened externally through the neck. In all cases of pharyngeal abscesses early recognition followed by operation is all-important.

JAMES BURNET (Edinburgh).

Cephalhæmatoma (*'Monatschr. f. Kinderheilk.,' June, 1906 p. 119*).—**Loránd** reviews the various hypotheses of the causation of this condition, and gives some account of its clinical aspects. He reports an interesting case of complete ossification of a cephalhæmatoma. The child was first seen when it was 18 days old; there was then a tense painless fluid swelling over the right parietal eminence. It was about the size of a goose's egg, and about the periphery of its base a hard raised edge was palpable. About three months later there had been but little diminution in the size of the swelling, but it had become hard. The child was seen again at the age of 11 months. Its general condition was then excellent, but there was pronounced asymmetry of the skull. This asymmetry was due to a bony

swelling of the skull measuring 7.5 cm. long and 6.5 cm. across, and occupying the region of the right parietal eminence. No egg-shell crackling could be made out. Examination with the X rays showed the outline of the skull to be normal beneath the swelling. The latter consisted of a thin lamella of bone covering it superficially, while between this and the underlying skull was a less opaque crescentic region apparently occupied by spongy bone. Loránd takes the view that treatment by aspiration or incision is never called for in cephalhæmatoma except when suppuration occurs. He seems to regard his case as a signal justification of this therapeutic attitude, but it may be doubted whether survival of the patient with pronounced asymmetry of the skull can be looked upon as a cure.

WILFRED TROTTER.

Diagnosis and treatment of tuberculosis of the pubis (*'Thèse de Paris,'* 1906; *'Rev. Mens. des Mal. de l'Enf. July, 1906.'*)—**P. Dhéry.**—Tuberculosis of the pubic bone is apt to present difficulties in diagnosis on account of its tendency to form abscess, which track widely, and open at a distance from the primary disease. Moreover similar sinuses may be produced by much commoner diseases, such as tuberculosis of the spine or hip. Again, tuberculosis of other parts of the pelvis may be difficult to distinguish from that of the pubis. The resemblance to hip disease is increased by the limping, the pain, and the limitation of abduction which may be present. The other positive signs of hip disease afford means of making the distinction, viz. limitation to a greater or less extent of all the movements of the joint, the presence of muscular atrophy. In late stages of pubic disease with many sinuses there may be a much greater fixation of the joint. Here the exclusion of hip disease will rest chiefly upon the absence of shortening and the results of radiography. With regard to the diagnosis of caries of the spine from pubic disease, the author resumes the ordinary evidences of the former condition. The diagnosis of disease of the ischium from disease of the pubis is to be made upon the facts that in the former case flexion and extension of the hip alone are limited, while in the latter case abduction alone is affected, and that in ischial disease the swelling tends to increase towards the buttock to a greater extent than it does in pubic disease. Radiography gives results of great value in distinguishing these two forms of disease of the pelvis. The author lays much stress upon the importance of recognising how frequently sinuses near the anus are due to disease of the pelvic bones. Unless this possibility is constantly borne in mind mistakes in diagnosis are very likely to occur. Upon the subject of treatment the author insists upon the frequency with which the disease is accompanied by the formation of sequestra, and, therefore, upon the importance of laying open the primary focus in every case and dealing with it adequately.

WILFRED TROTTER.

Osteogenesis imperfecta (*'Arch. of Pediat.,'* 1906, vol. xxiii, p. 583).—**E. D. Fenner** reports a case in a boy aged 5 years and 8 months, the sixth child of robust parents. He was healthy until four months old, when he was taken from the breast and fed on condensed milk. This set up diarrhœa. Teething was much delayed. He did not walk until the third year, and the fontanelle was open until he was four. Fractures began to occur in the third year, three in right femur and one each in left femur and radius. In each case traumatism was trivial or absent, and healing was comparatively painless.

EDMUND CAUTLEY.

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